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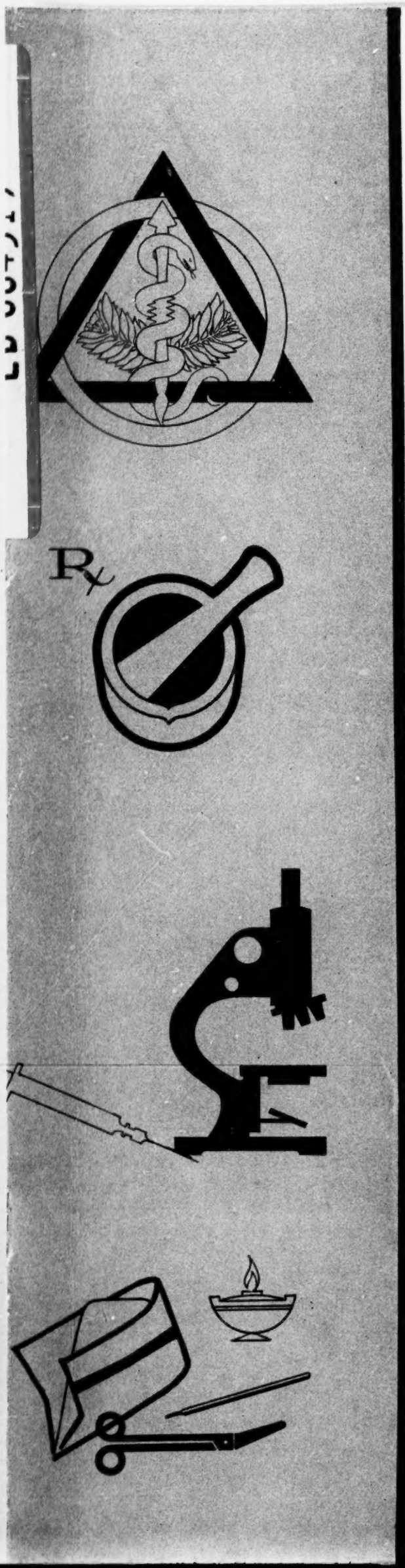
ABSTRACT

This document reports the results of a 3-week summer workshop attended by 10 preservice and inservice health educators. During the workshop, participants discussed these topics which are summarized in the report: (1) manpower needs, employment opportunities, emerging concepts, and research developments in health occupations, (2) analysis of health occupations including identification of health personnel in community services and resource material about health, (3) programs at the elementary, secondary, junior college, training institute, college, and university levels, and (4) developing health occupations programs, including assessing needs, availability of funds, curriculum development, legal restrictions and requirements, and facilities and equipment. Sources of information, suggested student activities for health occupations orientation, and a course outline of the workshop are appended. (SB)



Health Occupations Education

A Review

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HEALTH OCCUPATIONS EDUCATION

final report of the

HEALTH EDUCATION WORKSHOP

EASTERN ILLINOIS UNIVERSITY

JULY 19 -- AUGUST 6, 1971

FORWARD

This report represents the efforts of 10 pre-service and in-service teachers meeting in afternoon sessions from 1:00 to 4:00 p.m. during the third three weeks of Summer School, 1971 on the campus of Eastern Illinois University. All class members were involved in gathering material and in writing the report.

It is very important that the class members and the directors give special credit to Mrs. Joyce Felstehausen for editing, re-writing, and presenting clarity to the report. This is an essential task when compiling contributions of several people, and we would like to give recognition for this effort.

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September 1, 1971

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HEALTH OCCUPATIONS EDUCATION WORKSHOP SCHEDULE

Monday, July 19th
Topic: An overview about health occupations--past, present and future
Guest: Dr. Robert Tomlinson, Professor in Vocational Education, University of Illinois

Tuesday, July 20th
Topic: Health careers information--manpower needs. Class project proposal

Wednesday, July 12st
Topic: Emerging concepts in health care systems
Guest: Dr. Tumelty, Governors State University

Thursday, July 22nd
Topic: Task analysis
Guest: Dr. Marla Peterson, Director of the Occupac project at Eastern Illinois University

Friday, July 23rd
Topic: Resource material in health occupations
Group sharing of information about sources and materials

Monday, July 26th
Field trip: Assignment to a health center to observe occupational tasks of employees and complete a job analysis

Tuesday, July 27th
Topic: Identification of health personnel
Guests: Mrs. Pat Jenkins, Administrator of Charleston Hospital
Mrs. Richard Mylan, Representative of the American Cancer Society
Mr.. Richard McDade, Director of the Children and Family Services

Topic: Legal aspects of job placement
Guest: Miss Louise Daily, Division of Vocational-Technical Education

Wednesday, July 28th
Field Trip: Adler Zone Center (9:00-10:30)
Regional Office of the Department of Public Health (10:45-11:45)
Mercy Hospital (1:00-3:00)

v

Thursday, July 29th

Topic: Health occupations programs

Guests: Mrs. Doss, Decatur Area Vocational School-LPN Program
Mrs. Ruskins, Mattoon High School-Orientation to Health Occupations Program
Mrs. Ruth Ann Looby, Lakeland Junior College-LPN Program

Friday, July 30th

Topic: The role of the junior college in meeting manpower needs

Guest: Mr. Lewis Reibling, Belleville Junior College

Monday, August 2nd

Field Trip: Attend Robert F. Mager's presentation on Behavioral Objectives, Illinois State University

Tuesday, August 3rd

Topic: Cooperative health occupations programs at Westinghouse Area Vocational School

Guest: Miss Anna Passarello, Westinghouse Area Vocational School

Wednesday, August 4th

Topic: Senior college health occupations programs

Guests: Mr. Don Frey, Director of Health Careers Council of Illinois (HCCI)
Dr. Robert Smith, Eastern Illinois University

Thursday, August 5th

Topic: Viewing orientation films on health occupations

Friday, August 6th

Topic: Evaluation

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CHAPTER I

INTRODUCTION

Manpower Needs and Employment Opportunities

America has a chronic health problem--a shortage of health personnel in all categories. The enactment and subsequent implementation of the Allied Health Professions Personnel Training Act of 1966 has focused national attention on the need for a vast pool of health manpower which can provide a multitude of services associated with the health of people. (9:1)

FIGURE I

OCCUPATIONAL GROWTH PROFILE

Occupation	Estimated employment 1968	Projected requirements 1980	Percent change, 1968-80
Physicians	295,000	450,000	53.1
Osteopathic physicians	12,000	18,500	54.2
Dentists	100,000	130,000	31.7
Dental hygienists	16,000	33,500	109.4
Dental laboratory technicians	27,000	37,500	38.9
Registered nurses	660,000	1,000,000	51.5
Optometrists	17,000	21,000	23.5
Pharmacists	121,000	130,000	7.0
Podiatrists	8,500	9,500	11.8
Chiropractors	16,000	19,000	18.8
Occupational therapists	7,000	19,000	171.4
Physical therapists	14,000	36,000	157.1
Speech pathologists and audiologists	18,000	33,000	83.3
Medical laboratory workers	100,000	190,000	90.0
Radiological technologists	75,000	120,000	60.0
Medical record librarians	12,000	20,000	66.7
Dietitians	30,000	42,100	40.3
Hospital administrators	15,000	22,000	46.7
Sanitarians	10,000	14,000	41.0
Veterinarians	24,000	34,000	41.7
Licensed practical nurses	320,000	600,000	87.5
Hospital attendants	800,000	1,500,000	87.5

Source: Health Manpower Resources, Report No. 1, Preliminary Tabulations from the Survey of Health Manpower in Hospitals, Public Health Service. Bureau of Health Professions Education and Manpower Training, July 1970. (40:3)

In 1967, 3.5 million people were employed in all health occupations. (9:1) This number was ten times the supply of workers at the beginning of the century. The projected requirements for health manpower in 1980 are increasing in every area.

The occupational growth profile (page 1) shows the top six priorities in health manpower needs to be: (1) occupational therapists: (2) physical therapists; (3) dental hygienists; (4) medical laboratory workers; (5) licensed practical nurses; and (6) hospital attendants. To meet these demands and needs in other emerging health fields, the U.S. Department of Labor estimates 10,000 workers will be required each month over the next decade. (1:23)

What are the factors that are contributing to the increase in demand for health manpower and health care? Following are six major factors discussed in the Occupational Outlook Handbook, which are causing rapid expansion of employment in the health fields:

1. The country's expanding population.
2. The rising standards of living.
3. The increasing pressure for a more equal distribution of health services due to increasing health consciousness.
4. The growth of coverage under prepaid programs.
5. The rapid expansion of expenditures for medical research at federal, state and local level.
6. The replacement of present personnel. (11:17)

To support these factors, the "industry" of health services and care presently is the third largest employer in the United States and is

estimated to become the largest source of employment by the year of 1980. At present, the U.S. spends approximately seven percent of the gross national product on health services, or more than sixty-nine billion dollars. (35:20)

In order to meet the demands for health care, there must be an increase in the "Allied Health Manpower." Allied health manpower is defined as "those professional, technical, and supportive workers in the field of patient care, public health, and health research who engage in activities that support, compliment, or supplement the professional functions of physicians, dentists, and registered nurses; as well as personnel engaged in organized environmental health activities who are expected to have some experience in environmental health." (9:5)

Between 1950-1967, the number of workers in allied health occupations almost tripled from 286,000 to 806,500. (9:5) In the same period workers in other than allied health occupations increased at a slower rate, doubling from 1,396,000 to 2,708,500. (9:5) Eighty-five percent of the health occupation workers that need to be prepared fit into the "Allied Health Manpower" category as less than a baccalaureate degree is required. The demands for sub-baccalaureate workers are growing faster than those for physicians, dentists, and other people who require well beyond the baccalaureate degree. (48:9)

It is suggested that between 1966 and 1975, one million new allied health or paraprofessionals vacancies will need to be filled. (46:33) This is partially due to the new equipment and techniques which are being

introduced as health care and services improve. The government is promoting programs to meet this demand for paraprofessionals by training more of the non-white and female segment of the American population.

To provide comprehensive community health services in the next decade will require an unprecedented effort to recruit, educate, and train additional manpower for the health team. Such an effort should be intensive, planned, continuous, and should emphasize teamwork among all levels of health manpower.

However, Ginzberg related that certain dangers exist when unrealistic requirements are set up that can cause excessive limitations on program requirements. This factor distracts individuals from entering into various occupational endeavors and fails to provide a society with the services it requires. Each profession is therefore, responsible to provide the leadership which is essential to high quality services. Ginzberg advocates that in addition to our concern for quality we should not neglect aspects of quantity and that". . . The balancing of the two is the real challenge to professional leadership." (4:88)

Emerging Concepts in Health Care Systems

The ultimate goal of all health professions is the establishment of a health care system organized to provide comprehensive services of equal quality and access to all citizens. This system, shaped by a fundamental regard for human dignity, will manifest its comprehensiveness through four essential elements: health education, personal prevention services,

diagnostic and therapeutic services, and rehabilitation and restoration services. (8:2)

To meet this goal, there is a need to understand recent developments that are affecting the health care system and the changes these development have been and will continue to be causing. The first development is the change from the family doctor with one or more assistants to physician clinics with a number of nurses and technicians, hospitals which are health supermarkets, or neighborhood health centers.

Second is the substitution of nonprofessionals for professionals. This downard transfer of functions has occurred to meet manpower shortages and because new medical equipment, devices, and tests require better training at lower occupational levels.

A third development is the increase in facilities for the aged, sheltered care facilities, and a broad spectrum of mental health facilities. Such personal care facilities require a large number of personnel needing a variety of special skills. (36:3)

The present American health care system is one with an illness orientation. Bond, in a presentation to the 1970 National Health Forum, cited data that ranked the United States in comparison to other nations (1) fourteenth in infant mortality rates, (2) twelfth in maternal mortality rates. (3) eighteenth in male life expectency, and (4) eleventh in female life expectancy. In one of the richest nations, can inadequacies like these be tolerated? (52:5-13)

More and more it is being declared that the nation is in the throes of a health care crisis. Many Americans attribute the crisis to poor

management of health care institutions and inefficient organization and distribution of health care resources. (52:6) Leaders in the field identify at least five major factors which are affecting emerging concepts in health care.

McTaggert identifies as a reason for the level of health care in the United States the belief that good health care is a privilege not a right. We give lip service to the concept of health care as a right but in fact, those who can afford it generally get the best care and those who can't either take inferior care or do without. (7:3) Dr. George James, New York City's Health Commissioner, observed in 1965 that "poverty is the third leading cause of death in New York City." (5:121) Former Vice President Humphrey identified barriers separating the poor from health care as barriers of accessibility, health manpower shortages, costliness of health service, fragmented and dispersed services, and services that are depersonalized and lacking in continuity. (5:123-25)

While the United States is in a lower position compared to other nations in the level of health care, more money is spent on health care than any other country--not only in dollars but in per cent of the G. N. P. Health care costs have risen much faster than the cost of living. The standard solution of spending more money to solve the problem does not seem to have affected the national health care dilemma. (7:5)

A third factor is the shortage of health care personnel. In 1910 there were more physicians than nurses; today there are over 40 recognized medical specialists with a rising number of supporting technicians, technologists, therapists, assistants and aides. Health care experts tell

us that in the future we will use more allied health professionals and fewer M. D.'s to deliver health care to the population and that we will need more and more people to provide adequate services in a complex system of new techniques for health care and diagnosis. (51:188)

The fourth factor is concerned with the system for delivering health care. Henrich (51:188) and McTaggart 7:7-8) indicate that while excellent medical care is available in the United States, in many small communities there is no physician in residence. There are 5,000 American communities without a doctor. (7:8) There also is little control over duplication of services.

Inadequacies in health training programs is another factor being identified by leaders in the field. Kerr suggests that many are tired of the platitudes about health manpower shortages and insist that it is time to move into the problem-solving phase. (49:2-3) There is a growing concern about the lack of provisions for vertical and horizontal mobility in health occupations education. While workers in different areas of the health field utilize many of the same scientific understandings, the individual wishing to move horizontally from the area in which he has been trained will have to train anew. Many health workers end up in dead-end positoins without opportunity to advance. (52:2-4; 36:10; 33:v-vi) President Johnson's Commission on Health Manpower suggested approaching the dilemma in the following way: Train to do the job, experiment with classification and roles, and see if the forecast shortages really exist or if the shortage is a misallocation of personnel. (51:189)

Social and technological changes in medicine have precipated the need to reorganize the health care delivery system in this nation so that more efficient and effective health services will be available. While a closely integrated approach to the problem has not been initiated, the reorganization of the system has begun. Several new concepts of health care can be identified.

McCoy reports that in an effort to make the health care delivery system more rational and efficient the following trends are taking place:

1. An increase in the number and variety of new kinds of medical assistants.

2. The restructuring of medical curriculum so it is shorter and more relevant.

3. The establishment by medical schools of community health centers for comprehensive health care in welfare settings to provide both medical services and training.

4. The use of pre-payment plans and expansion of comprehensive health facilities. (36:134-41)

In response to rising costs of medical care, solutions for financing health care through some kind of pre-paid medical plan are being tested. The traditional method of arranging for health care in the U. S. has been through a fee-for-service system where a patient selects a doctor and pays him for his services. This practice can be characterized as "sickness care" rather than "health care." Because this method has left us with a serious crisis of unmet needs amid large and growing resources for health care, suitable alternatives to the method are being sought.

One approach is group practice. A group of physicians pool their incomes to provide health care to a group of patients who pay a monthly fee

in advance. This is known as a group practice prepayment plan (GPPP's) There are several major GPPP's in operation today. (7:187-91)

Tumelty (50) described two GPPP's, the Kaiser-Permanente and the Health Maintenance Organization (HMO), as plans emphasizing preventive, rehabilitative medicine. Plan physicians make money only when they keep members well. Members tend to see their physician more often and earlier. Early treatment helps prevent serious illness and complications and members spend significantly fewer days in the hospital. Other major plans are the Health Insurance Plan of Greater New York (HIP) and the Group Health Cooperative of Puget Sound (GHC).

McTaggert reports the following advantages of GPPP's:

1. Most services available under one roof.
2. Physician competence has been evaluated by other doctors.
3. Services are available 24 hours a day every day of the year.
4. Medical records are always available.
5. Care is based upon medical judgment not monetary influence.
6. Expenses are predictable. (7:197)

In GPPP's there are four basic divisions of services: Health testing, preventive maintenance, health care and sick care. Health testing, health care, and preventive maintenance are primarily automated and paramedical services. Garfield views this type of system as best fitting the concept of medical care as a right and feels that this type of organization may provide a basis for a rational delivery system of providing health care for the poor. GPPP's provide quality care, available service, and reasonable economics. (25:1505)

Another emerging concept is resulting in the American Hospital Society developing materials and guidelines for the upward mobility of employees in health care institutions. The purpose of the AHA's approach is to develop a career mobility program to meet the needs of employees and reduce the high rates of employee turnover. (51:197) Methodology and strategies are being designed to draw existing employees into a system based program of upward mobility along a career ladder. Steps are being sought to minimize the training distance between steps in a career ladder by building on related skills and rejecting the concept of terminal programs in favor of continuous educational programs with exit points along the way. (51:187)

Vocational educators must pay attention to developing programs in line with career ladder and core curriculum preparation emphasis.

Lashof describes types of delivery systems which have the potential to make health care accessible and eliminate the duplication of and fragmentation and dispersal of services. These systems are designed to relate primarily to community level care within the spectrum of health care. Two described are the neighborhood health center and the mile square health center.

Neighborhood Health Center. This center is located within the community it serves. Contained within one physical location are preventive services, acute and chronic illness care, mental health and dental services, laboratory, X-ray, and pharmacy facilities. In addition, outreach services are extended providing health education, family health counseling and home nursing care. Affiliation with a hospital provides inpatient care.

The Mile Square Health Center. This serves a geographic area of one square mile and is organized around three echelons of care: (1) public health nurse and community health aides who function primarily in the home; (2) neighborhood health center care with a complete range of medical and dental preventive and treatment services available; and (3) hospital care. (52:26-35)

Another trend in health care is the expanding role being played by allied health personnel and the new concepts being used in training them. Allied health educational programs are shifting from hospitals to community and junior colleges (26:1529, 1532) In an attempt to more effectively recruit personnel, health occupations exploration, orientation, preparation and cooperative education programs are being implemented in the public school system. Underlying these programs is the present Federal Government support through reimbursement of health programs at the 100 percent level.

An attempt to more systematically approach and integrate problem solving programs is emerging. Regional centers for allied health instructional personnel are being developed to coordinate and plan the training of education leaders and faculty personnel for allied health fields.

Research Developments in Health Occupations

Holloway and Kerr expended considerable effort to locate all research in health occupations education. While it is very likely that not all the studies that have been done were brought to their attention, they found a substantial number of studies applicable to the review topic. The review and systhesis was concerned with vocational and technical level health

occupations. Preparation for this level of occupations can range from very limited to as much as three years of college but stops short of a baccalaureate degree. The researchers found that the preponderance of the studies had been in the nursing field. (30:v, 3)

Studies reviewed and reported by Holloway and Kerr (30) were in the following areas:

1. Manpower needs--both those for multiple occupations and those done for a specific health occupation.
2. Manpower supply--both the supply of new personnel becoming available and the better utilization of presently prepared workers
3. Job satisfaction and working conditions.
4. Curriculum development--in areas of occupational analysis, content and emphasis, and core and ladder concepts.
5. Educational programs--studies describing, comparing or proposing the establishment of health occupations education programs at the post-high school level and high school level.
6. Instructional material and devices--only one study was found on types of materials used; most were bibliographies or on development
7. Learning processes and teaching methods--methods being utilized and those that explore particular teaching methods.
8. Student personnel services--pertaining to selection of students and guidance and counseling.
9. Facilities and equipment--very little research was found in this area.
10. Teacher education--supply and education of teachers, educational experiences needed to prepare faculty, and pre-service and in-service teacher training.
11. Administration and supervision--most studies were in areas of program planning; no studies were found in area of supervision.
12. Evaluation--most evaluation studies reported used follow-up methodology; research in measurement and grading of students was almost nonexistent.

The researchers found wide variances in studies on manpower needs and were unable to ascertain the number of prepared workers needed in various areas in the health field. (30:7)

Studies showed that basic nursing education is preparing graduates who are being expected to accept greater responsibilities than those for which they have been trained. (30:22)

No health occupations education studies were found which examined basic learning processes. (30:42)

Many studies were found which examined factors for predicting student success in HEO programs. Several studies indicated nursing students felt they did not recieve adequate counseling prior to entering and during training. (30:46, 48)

While the number of studies reviewed was encouraging, noticeable gaps were found in areas of: philosophy and objectives; instructional materials and devices; facilities and equipment; administration; teacher education; utilization of workers; career progression; and research. (30:65)

Kintgen, in reviewing documents directly related to or having clear-cut implications for career ladder and/or lattice concepts found 56 such documents. The reviewer found literature on these concepts to be increasing, and that experimental programs to increase career mobility of personnel are in operation. The large scale research approach of the UCLA Allied Health Professions Projects and the Health Services Mobility Study of the New York City Municipal Hospitals are probably the most significant. (33:3-4

Both the UCLA projects and the Health Services Mobility Study are utilizing analysis methodology. The purpose of the UCLA projects is to create curriculum and instruction material for Allied Health functions that can be taught appropriately in programs to the associate degree level and to group in-service and pre-service programs for those health related occupations in which on-the-job training plays a role. Twenty-two clinical and facility and support areas are under study. (33:4; 51:188-90)

The Health Services Mobility Study is an analysis of 230 Civil Service job titles in New York City Hospitals covering 36,000 employees. The analysis considers factors which define individual jobs and relate them to each other. Proposals based on the findings were made for facilitating and staffing mobility. New design methodology for long-run manpower developments and a curriculum design to paraliel job mobility proposals and were addidional objectives of the study. (33:4)

According to Christal, the Personnel Division of the Air Force Human Resources Laboratory has collected information on the work-tasks of 150,000 jobs over the last 12 years. One pay-off of the project has been in Curriculum Development. The data has been used to orient training to the work-tasks students are most likely to encounter after graduation. Such factors as the probability the task will be encountered, the parashibility of the skill; the cost-effectiveness of teaching the skill; the consequences of inadequate performance; the probability that the skill will be needed in an emergency situation;

transferability of the skill; and trainability of the skill are combined into a composite reflecting the importance of including training in a skill as a curriculum element. (51:194)

Because of the relative newness of the health field as a separate entity in the over-all vocational program, research is needed in an effort to define the role to be played. London feels that it is essential for the academic institution to make a major commitment to a program of teaching and research in the field of health services and that this program be related to community health needs. Research should be a total involvement to include all aspects of health services: the employer, the employee, and the consumer. He feels that educational preparations for medical and health related fields must involve continual evaluations of experience with health care programs and with progress in the development of curricula for health professionals and paraprofessionals. (37:23)

The Educational Resources Information Center (ERIC) is a nationwide information service established to help put the results of a new education research into the hands of those who need it and to do so on an up-to-date basis at nominal cost to the user. ERIC is decentralized and the Clearinghouse on Vocational and Technical Education is located at the Ohio State University. The success of ERIC depends, in part, on the acquisition of current, significant reports that educators think will have value for teachers, administrators, educational specialists, researchers, or the public.

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CHAPTER II

SURVEY OF HEALTH OCCUPATIONS

Health Occupations Analysis

Analysis had traditionally played a major role in health occupations. Peterson (23) listed the following uses of job analysis: recruiting and placing workers in business and industry, evaluating employees, gearing wage scales to tasks performed, vocational counseling, and in developing curricula and instructional materials.

In designing a curriculum to prepare workers for a particular vocation, curriculum designers must have an explicit understanding of the worker's role. A variety of methods are used in ascertaining the role of the worker. The least satisfactory, but probably the most frequently used method, is to ask a small group of workers or experts in the field how they do the job, or how it should be done. This is limited by the breadth of experiences of those involved and may perpetuate biases and outmoded methods. (4:21.)

Job analysis--the process of studying the operations duties, and organizational relationships of jobs to obtain data for reporting the significant worker's activities and requirements--is an accepted technique for curriculum development and revision in the field of vocational and technical education (6:8: 4:21)

Task analysis--a method or process by which a task, a subunit of a job, is examined and its characteristics, in term of certain attributes, are identified--is a method upon which course development can be based.

A third type of analysis is occupational analysis--a systematic method of obtaining comprehensive information on occupations and industries as well as job, tasks and positions. (6:0; 4:21)

These three techniques are used to gather and log information, analyse it and prepare a detailed description of the job or task. Positive distinctions between the three systems are often difficult to establish. (6:9)

A fourth type of analysis is "evental analysis"--a process of describing in simple terms the real events a worker must do. This description is not on mechanical steps to be completed but on how the worker must perform within specified limits of time and accuracy. This type of analysis fits into recent efforts to shift to learner-centered programs with behavior objectives as advocated by Mager. (4:21

Structural analysis represents an attempt to organize terminal performance objectives for a unit of subject matter into a sequence of prerequisite competences which must be successfully mastered if successful performance is to occur. This method enables a hierarchy of requisite competences appropriate to the final task to be developed. (6:9)

A variety of methods have been used for collecting data for the different types of analyses. These methods include mail surveys, interviews, observations, analyses of documents such as curricula and textbooks, and committees composed of persons associated with the profession. After the analysis information has been secured hte results are usually reviewed by a specialist(s) in the occupational area. (6:9)

Peterson defined job analysis as basically revealing what a worker does, how he does it, why he does it, and the skill involved in doing

it, and if supervision is required. (23)

Identification of Health Personnel in Community Service.

The American Medical Association indicates that there are at least 700 different career possibilities in the health professions and occupations. (i:viii)

FIGURE 2

LEVELS AND PREPARATION OF HEALTH PERSONNEL

Occupation or Profession	Usual Place of Preparation	Length of Program
Aides	On-the-job in hospitals and other health care facilities Secondary schools Private schools Adult education classes	From 4 to weeks to less than 1 year
Assistants	Health care facilities Technical institutes Community or junior colleges Private schools Special government schools	Approximately 1 year
Technicians	Hospitals and other health care facilities Community or junior colleges Technical institutes University affiliated medical centers Private schools	Approximately 2 years or more
Technologists: Therapists (Often known as allied health professionals)	Colleges and universities	Generally a B.S. and possibly a M.S. degree
Physicians and Dentists	Colleges and universities Medical and dental schools	Post graduate program with specialty internships
Scientist (Usually research)	Universities	Post-graduate, usually at doctorate level

The medical profession alone has at least 20 areas of specialization. (7:53) Of every 100 health workers 9 are physicians, 37 are other professional workers, 39 are in service maintenance occupations, and the remaining 17 are administrative and office workers. (7:4)

Among health occupations there are those that provide for the ill and injured as well as those that help to prevent illness. Some of the occupations call working intimately with all kinds of people; others are carried out in the relative isolation of the laboratory. Some health occupations require very little special training, others require several years of college and/or specialized training (Figure 2).

In Figure 3 an attempt is made to identify a representative sample, in broad categories, of some of the possible career opportunities in the health field. It would be almost impossible to present the current total spectrum of career possibilities. One should keep in mind that every technician, assistant and aide works under the direction of an appropriate supervisor or professional. Conversely, for every supervisory or professional position, there are supportive clerical, technical and assistant personnel.

FIGURE 3

CARRERS IN MEDICINE	BUSINESS CAREERS IN THE HOSPITAL
Family Physician	Accountant
Opthamology	Admitting Clerk; Officer
Osteopathic Physician	Business Manager; Controller
Pathologist	Director of Volunteer Services
Pediatrician	Hospital Administrator
Podiatrist	Hospital Pharmacist
Psychiatrist	Medical Records Librarian
Specialist	Medical Records Technician
Surgery	Office and Clerical
Veterinarian	

CAREERS IN NURSING

Licensed Practical Nurse
Nurse Anesthetist
Nurse Educator
Obstetrical Nurse
Occupational Health Nurse
Public Health Nurse
Psychiatric Nurse
Registered Nurse
Surgical Nurse

CAREERS IN REHABILITATION

Geriatric Aide
Inhalation Therapist
Inhalation Therapy Aide; Assistant
Occupational Therapist
Occupational Therapy Aide; Assistant
Orthotist
Orthopedic Technician; Cast Specialist
Physical Therapist
Physical Therapy Aide; Assistant
Prosthetist
Recreation Therapy Aide; Assistant
Rehabilitation Counselor
Speech Pathologist and Audiologist

CAREERS IN SUPPORTIVE NURSING

Home/Health Aide
Medical Assistant; Secretary
Nurse Aide; Assistant
Orderly
Psychiatric Aide
Ward Clerk;Manager

CAREERS IN DENTAL HEALTH

Dental Aide; Assistant
Dental Hygienist
Dental Laboratory Technologist
Dentist

CAREERS IN MENTAL HEALTH

Mental Health Aide;Worker
Mental Health Activities Aide
Mental Health Technician
Mental Retardation Aide
Child Care Aide

LABORATORY CAREERS

Blood Bank Technologist
Chemistry Technologist
Certified Laboratory Technician
Cytotechnologist
Histologic Technician
Medical Laboratory Aide; Assistant
Medical Laboratory Technician

CAREERS IN EYE CARE

Optometrist
Optician
Optometric Assistant; Technician
Orthoptic Technologist
Orthoptist

OTHER HOSPITAL TECHNICIAN CAREERS

Central Supply Technician
EGG, EEG, and EKG Technician
Operating Room Technician
Medical Emergency Technician

CAREERS IN MEDICAL SOCIAL WORK

Geriatric Social Worker
Hospital Caseworker
Medical Social Worker
Psychiatric Social Worker.

WRITING AND ILLUSTRATION CAREERS

Health Information Specialist
Hospital Public Relations Director
Medical Illustrator
Science and Medical Writer
Technical Writer

CAREERS IN DIETITICS AND NUTRITION

Dietary Aide; Assistant
Dietician
Food Service Supervisor
Nutritionist

CAREERS IN RADIOLOGIC TECHNOLOGY
Nuclear Medical Technologist
Radiologic Assistant
Radiologic Technologist
X-ray Aide

CAREERS IN PLANT OPERATION AND MAINTENANCE
Executive Housekeeper
Hospital Engineer
Housekeeping Worker
Laundry Worker
Maintenance Worker

CAREERS IN ENVIRONMENTAL HEALTH
Chemical engineer
Entomologist
Industrial Hygienist
Microgiologist
Radiation Detection Technician
Sanitarian
Sanitary Engineer

CAREERS IN EDUCATION & PSYCHOLOGICAL TESTING AND SOCIAL SCIENCE
Health Economist
Health Educator
Health Sociologist
Peripatologist
Psychologist
Psychometrist
Special Education Teacher

Resource Material About Health Occupations

There is a wealth of available resource materials with the intention of acquainting interested individuals with thw wide range of career pursuits which are open in the health field.

For general information on health careers, the Health Careers Guidebook or the Occupational Outlook Handbook, published by the U.S. Department of Labor, the American Medical Association's Horizons Unlimited: Opportunities in Health Careers--Directory/Missouri-Illinois, 1970-71. compiled by the Bi-State Regional Medical Program; and Opportunities Unlimited, compiled by Indiana Health Careers, Inc., Contain descriptions of a broad spectrum of health careers.

The publication Opportunities in Health Careers and Opportunities Unlimited, in addition to general information on specific careers, list schools offering courses for preparation in individual careers in Illinois, Missioui and Indiana.

Another primary source of resource material is the Health Careers Council of Illinois (HCCI). The HCCI has the largest reported budget of the 68 health careers programs operating in 42 states, the District of Columbia, and Canada. The HCCI offers a four-part program: career exploration and public information, educational development, planning, and pragmatic research. Staff members of the HCCI present health career and health manpower programs to clubs or schools for career days, etc., and advises and provides materials for programs carried on locally by schools, auxilaries, professional and club groups. HCCI also distributes health career reference materials to Illinois libraries, rates health career films, and has produced up-dated and loans two slide films, "Exploring Health Careers in Illinois" and "Introduction to Health Careers."

HCCI will provide ideas, staff assistance and materials in organizing and planning health careers curriculum suited to a particular community.

The HCCI publishes a monthly bulletin, "Pathways to Health Careers," to inform auxilians, guidance counselors, and health personnel of trends and activities in health careers recruitment and education. Twenty-two individual leaflets describing major health fields are available in the "Pathways Series." These leaflets are keyed to Illinois schools and are available to Illinois adults engaged in health manpower programs A brief description of the intended use of the materials and an estimate of the number in the contact audience must accompany the request for materials.

The HCCI has a film list giving titles, descriptions, sources, rental fees and length of over 50 films on health careers.

The National Health Council, in a leaflet "Where to Get Health Career Information," lists many career areas and sources for obtaining information on the opportunities and requirements in each field.

The American Medical Association will provide free literature on medical and allied career, films, and other aids for career counseling or programming to school guidance counselors, college advisors, medical and allied health organizations. Reasonable quantities of Horizons Unlimited are available free.

The American Hospital Association has colorful posters and wall folders suitable for use in elementary schools, high schools, and colleges. The AHA's health career publications for children include a wall hanging mentioning seven health careers, posters and postcards. The "AHA Career Series" leaflets detail hospital specialties which are generally not covered in depth in other career literature.

The AHA Film Catalog lists and describes films and filmstrips available from the AHA Film Library. Films are coded as to those suitable for inservice training, those cleared for television and those suitable for public education. Section II of the catalog lists, by categories, films suggested for specific hospital educational programs.

Also available from AHA is a "Publication Catalog" listing publications and prices of resource materials available.

Each health profession has its own national or state organization which will supply resource information. Drug companies, insurance companies, the American Cancer Society, the National and the Illinois Easter Seal Society, the Arthritis Foundation, the National Rehabilitation Counseling Association,

the National Commission for Social work. Careers are some of the many groups having printed materials on opportunities for work in the health field.

The U.S. Goverament Printing Office has available the information published by many government agencies. The U.S. Department of Labor Statistics has an "Occupational Outlook Report Series" of 115 career pamphlets, many of them dealing with professional, scientific, and supporting occupations in the health field. The Occupational Outlook Quarterly, Vol. 14, Winter 1970, 45 cents per copy, is an issue devoted entirely to articles on health manpower and training programs. Publication catalogues and order forms for governmen publications are available. from: Superintendent of Documents, U.S. Government Printing Office, Washington, D. C. 20402.

Review and Synthesis of Research in Health Occupations Education, by Lewis D. Holloway and Elizabeth E. Kerr; Review and Analysis of Curricula for Occupations in Health, by Wiley B. Lewis; and Interpretation of Literature on Career Ladders and Lattices in Health Occupations Education, by Jean Kintgen are publications of the ERIC system's Research and Development and the Information Series. These three documents review and analysize/or synthesize literature concerning many aspects of health occupations education and are invaluable in identifying resources for curriculum designers. ERIC also has available guides for planning facilities for many health occupational programs and Harold R. Rowe's, A Health Careers Development Program for the Rural High School. This preceding document contains an extensive bibliography of resource materials for health occupations

training programs: General comprehensive programs: Ambulance Attendant; Dietary Aide; Dental Assistant; Medical Assistant; Medical Laboratory Assistant; Medical Records Clerk; Visiting Home Health Aide; and Ward Clerk

The ERIC Clearinghouse on Vocational and Technical Education produces two publications, Abstracts of Research and Related Materials in Vocational and Technical Education (ARM) and Abstracts of Instructional Materials in Vocational and Technical Education (AIM). These publications announce the availability of the documents acquired and processed by the ERIC Clearinghouse on Vocational and Technical Education. ARM incorporates abstracts of research and other materials useful to a wide audience of users such as researchers, supervisors, teacher educators, education specialists, administrators, and teachers. AIM includes abstracts of materials typically designed for teacher use or student use in the classroom and annotations of bibliographies of lists of instructional materials.

Several publishing companies have student manuals for individual health occupations. Delmar Publishers, Albany, New York 12205 is active in this field.

Addresses of the organiztions mentioned in this chapter and other organizations providing resource materials will be found in Appendix A.

Books

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15. Rose, Arthur. "Social Work: A Need for Job Redesign." Occupational Outlook Quarterly, Vol. 11, No. 4 (December 1967)

16. United States Department of Labor. "The Many Faces of Work" Occupational Outlook Quarterly, Vol 9, No. 4 (Dec., 1965(24-27

Microfiche

17. Fullerton, Bill J. The Identification of Common Courses in Paramedical Education. Tempe, Arizona: Arizona State University, July, 1966, (ED 010 190)

18. Holloway, Lewis D. Guidelines and Supportive Papers for Planning and Conducting Short Term Teacher Education Activities: Developing Teaching Competencies Needed by Educational Personnel in Post-Secondary Health Occupations Programs. Iowa City, Iowa: Division of Health Affairs, Feb. 1970, (ED 037 581)

19. Nangle, Grace L. Health Occupations Education Centers, Report of a Seminar (July 11-14, 1966) Columbus, Ohio: Center for Vocational and Technical Education, The Ohio State University, October 1967. (ED 016 823)

20. Rosen, Marvin J. An Evaluative Study Comparing the Cognitive and Attitudinal Effects of Two Versions of an Educational Program about Mind-Affecting Drugs. Los Angeles, California: Evalutaion and Research Associates, 1970, (ED 044 564)

Speeches and Papers

21. Genge, Connie and Gudauskas, Doris J. "Health Occupations." Unpublished term paper, Health Education 505, Eastern Illinois University, August, 1970.

22. Henrich, Robert R. "UCLA Projects--Health Occupations Task Analysis and Evaluation." Speech recorded in Convention Proceedings Digests (New Orleans, Louisiana, December 4-9, 1970). Washington D. C.: American Vocational Association, pp. 189-190.

23. Peterson, Marla "Task Analysis." Speech presented to the Health Occupations workshop at Eastern Illinois University, July 22, 1971.

Chapter III

DESCRIPTION OF PROGRAMS

At present there does not exist in most schools, particularly in elementary, junior high and senior high schools, a program of instruction and/or counseling for health occupations. This chapter will review some aspects of (1) the philosophy upon which such programs can be based, (2) plans for initial programs, and (3) experiences of operational programs at all levels of the career development continuum.

In meeting health manpower needs and combatting high turnover rates, many leaders in the field see the development of an educational system to perpare health workers as a major objective that cannot be left to chance.

Hamburg lists five suggestions for achieving the goal of a systematic linkage of educational efforts through cooperation and coordination:

A. Provide a continuum of education which will permit the upward mobility of a health worker within a discipline without an unnecessary reduplication of educational experiences at each level.

B. Provide within the design of individual course material the proper foundation for the subject so that the progression to more advanced work in that same topical area does not repeat endlessly, perviously covered material.

C. Identify the commonality of education experiences which exists among the various health disciplines and expedite their transferability to permit lateral mobility among the different educational pathways.

D. Provide whatever classroom or laboratory experiences are required to facilitate such lateral mobility.

E. Develop the criteria for academic credit which must be given for skills and information acquired through other than the presently accepted classroom channels. (2:3-4)

Allen believes that in developing a system of education for health occupations there are 5 C's to be considered: Coordination, cooperation, communication, concurrency, and continuing education. (1:3-9)

It is felt that regardless of the age at which education for employment is begun, there is a sequence which occurs. It is necessary for a prospective worker to explore careers. The earlier this exploration is started the better will be the opportunity for mature, satisfactory results.

After the individual has had many exploratory opportunities, preferably at the elementary grade level, he is ready for self analysis of his interests, aptitudes, temperament and personality traits, influence of family, and aspirations. If this occurs in junior high school the student will have a basis upon which to make a tentative career decision to guide his high school program of employment preparation. After the individual understands his interests, attitudes and capabilities he will engage in a stage of job analysis or refined occupational exploration, where he will weigh alternatives and determine occupational goals. At this point the individual will start basic preparatory experiences for employment and then gain occupational experience through on-the-job training. The last stages in this development are--acquisition of employment, occupational adjustment, and career success. Figure 5 illustrates the steps in career development.

A trend toward career development education integrated throughout the school is emerging.

FIGURE 4

STEPS IN CAREER DEVELOPMENT

BEHAVIOR AND ATTITUDE DEVELOPMENT	Images of the world of work Perceptions of the value of workers Images of the contribution made by workers to the nation and its people Positive self-concept
leads to	Occupation exploration desire

SELF ANALYSIS	Interests Aptitudes and abilities Temperment and personality Influence of family Aspirations Values
leads to	

JOB ANALYSIS	Occupational exploration Weighing of alternatives Determining occupational goals Necessary basic education Tenative career decision
leads to	Occupational preparation Occupational experience

RESULTS	Employment acquisition Occupational adjustment Career success

Elementary and Secondary School Health Occupations Programs

Olson describes the Pittsburgh Public Schools approach to exploratory and entry-level Health Occupations Programs as being centered on three components: (1) developing a continuum; (2) researching commonalities; and (3) utilizing a systems approach in the implementation and management of programs.

In the program continuum concept it is recognized that the first observations about the health field begin very early in life and continue through formal school experiences. In grades K-5 the purpose of the educational program is to begin to develop "chains" about various occupations which become the foundation for a continuing development over a period of time. Grade 6 students are asked to make "identifications" through concrete experiences that relate to the health field. Experiences are in areas of human relation and communication skills, among others. In grades 7 and 8 students are asked to "respond" to activities relating to the home health and community cluster. Grade 9 students, participating in the program, are expected to develop and organize "concepts" that comprise the health occupations. Students, in programs at the 10,11, and 12 grade levels, react to _principles and structure" in a specified skill-centered program designed to develop saleable competences. (10:D14-15) Figure 5 illustrates this continuum approach.

The courses offered in the Pittsburgh plan in grades 10,11, and 12 are taught around commonalities. The purpose of such an approach is to develop educational programs that are open-ended and allow students to

develop saleable skills that are commensurate with interest and abilities (10:D15) Figures 6 illustrates this concept.

Very little has been done in developing health occupations information for grades K-6. While elementary teachers have spent block of time developing the concepts of community helpers, the public has little knowledge of health occupations other than that about doctors, dentists, and nurses. Kerr feels that more effort must be directed to the development of career orientation that would serve to acquaint students with broad opportunities in the health field, the roles of health workers, the preparation required for each role, and would assist those with expressed interest to select a preparatory program

FIGURE 5

PROGRAM CONTINUUM*

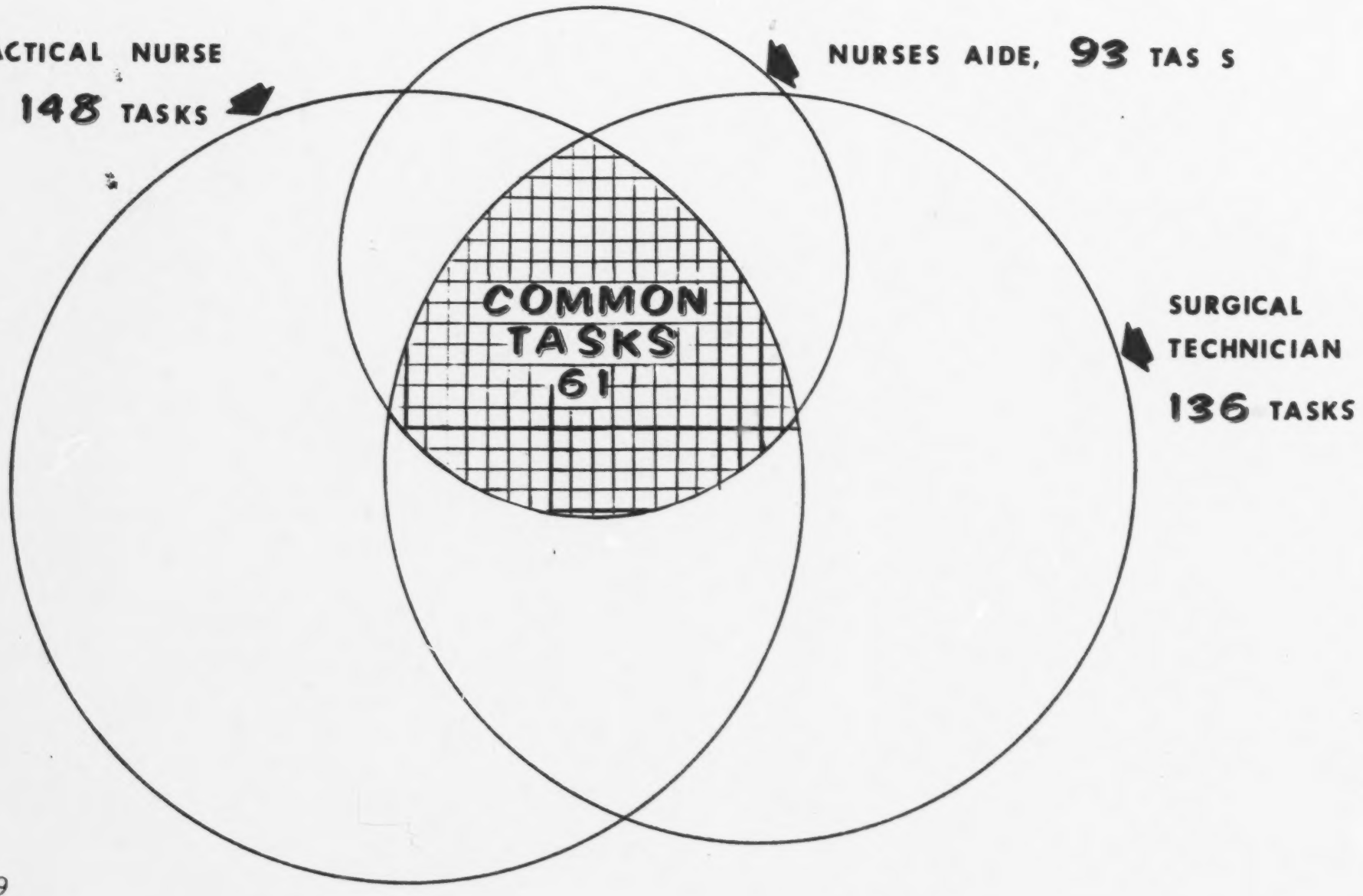
Level	Educational Experiences	Purpose
Pre-School	Awareness of the World Around Them	OBSERVATION
K-5	Self-understanding of the World of Work Images of the world of work Perceptions of the dignity of work Contributions made by workers to the nation Positive concept of self	CHAINS
Grade 6	Concrete Experiences Information about major job families Experiencing work oriented tasks	IDENTIFICATION
Grades 7 & 8	Home, Health, Community Cluster Area Identify occupational opportunities Identify interest, aptitude and potential	RESPONSE
Grade 9	Health Occupations Exploratory Survey Background preparation for gainful employment in skills and competences needed by workers in individual health occupations	CONCEPTS
Grades 10-12	Skill Centered Instruction to Develop Competences and Capabilities for Entry Level Employment or Further Training in Business Health Occupations Medical Assistants Health Occupations Research Laboratory Health Occupations Learning Specific Job Competences and Capabilities through Occupational experience--on-the-job training	PRINCIPLES STRUCTURE

*Adapted from: Jerry C. Olson, "Exploratory and Entry Level Health Occupations Programs," (10:D17)

FIGURE 6

COMMONALITIES*

EDUCATIONAL PROGRAMS | SPIN-OFF LEVELS | LICENSING AND/OR EMPLOYMENT ALTERNATIVES



*From 10:D19

most in keeping with his interest, motivation, and abilities. (3:2-9)

Jobes' contention that health occupations exploration be defined as image building, i. e., exposing individuals to experiences that allow them to imagine themselves in a physical setting, leaves health occupations educators with the challenge of building the image of the practicioner--the nurse aide, laboratory technicains, the health occupations educator. He contends that medical schools have students entering who have been waiting for years to enter and it is the educators responsibility to provide the image building necessary to sell all levels of health occupations. (;4-19)

There is a thrust in developing instructional materials for information-exploration activities in grades K-6 presently going on. Elementary activities are often action oriented. Emphasis is upon the youngster learning about role models. Visits can be made to the hospitals, nursing homes, universities where children may catch a glimpse of health occupations. (5: 4-1) The OCCUPAC Project being conducted at Eastern Illinois University uses the role model concept in developing packages of multisensory materials that contain "props" of all kinds from the real world of work." Among the multisensory materials contained in the packages are: slides, tapes, the "sounds" of work, equipment and materials used in the occupation, decision-making simulation activities, puppets, and other materials related to the occupation. Some of the teachers pilot-testing the OCCUPAC reported students making packages of materials

on other occupations as they studied them. Another suggestion resulting from the project was that older students in health exploration programs make pacs of materials to be used by younger level children.

Bender's suggestions of the use of "prop boxes" seems closely related to the OCCUPAC approach. A "prop box" is composed of real items from a specialized occupations. For example, what does a nurse require in order to tend the sick? Bandages, medicine bottles, cap, badge, and other items that children suggest. Separate boxes for various kinds of occupational role playing could be made easily identifiable to children by appropriate pictures cut from magazines or drawn by children and/or adults. (4:164-169)

A list of other information-exploration activities will be found in Appendix B.

Very little information is available on existing junior high school programs in health occupations. This seems to be a fertile field for future development. Borosage reports that the contemporary scene reveals that we have some systematic guidance and pre-vocational activities at the junior and middle school level as manifested by such courses as general agriculture, general business, home and family living, and industrial arts. The objectives of these include an exploratory component. However, when it comes to health occupations, there is a note: deficiency. Supplementing these courses are such promising practices as counseling and career days. (5:4-6)

As an aid to program developers at the junior high level the following suggestions are made as being appropriate for 7-9 cognitive and interest levels:

1. Students should be involved in experiences that will provide the background so they will be able to

   a. anticipate changes in work

   b. know resources for information important in vocational choice

   c. understand ways to get up-to-date occupational information

   d. understand that work determines way of life, values, speech dress, use of leisure time, where you live, and whom you meet, and social and economic status.

2. Students should have the opportunity for in-depth exploration of specific health careers. Areas of exploration would include:

   a. job entry requirements

   b. training sources and requirements

   c. monetary outlay for training

   d. manpower data

3. Students should be counseled in seeking answer to questions as

   a. What occupational outlets are there for me in the field with my needs, values, interests, and aptitudes?

   b. How can I make use of these occupational outlets?

Science Research Associates, Inc. has twenty Job Experience Kits available for students in grades 8-11. The kits in health occupations are Medical Technologist, Veterinarian, and X-Ray Technician. Each kit presents simulated work experiences that are representative of the occupation. The wording of the kit is simple enough to eliminate reading ability as a significant factor, and each problem is simply presented so that most students can complete the task in fifty minutes or less. The kits are based on the concept that a successful problem-solving experience is highly motivating factor in motivating further exploration of a particular job.

A warning coming from leader in the field at this point is that the occupational information we develop ought to tell it like it is instead of trying to glamourize the view of the health occupation. Too many students drop out before completing a preparatory program or even worse, go ahead and complete the program but never work at the occupation because they found out during training that the occupation was not for them. Exploration should show the trauma, the exaustion, the tremendous impact of problems that must be faced by the people in each of the health occupations, and yet the ideal of public service, helping humanity, and the dedication involved should be brought through. This kind of information will at least let prospective health workers know some of the occupational requirements in advance.

If there is an effective exploration and orientation program in the school system by grade 10 students will be able to launch their preparatory program.

There are as many possible approaches to Health Occupations Education at the senior high school level as there are programs. One approach is to offer at the ninth and-or tenth grade levels courses designed to include basic information applicable to nearly every occupation within the health occupations field. The planning of sequential courses is essential whether they are one semester, parts of a semester, one year or longer. Courses should interlock in such a way as to lead a student toward his career objective. Tenth grade occupational orientation could include anatomy, physiology and microbiology with units in medical terminology, m icrobes and disease, medical self help and health occupations orientation.

Occupational experience in grades 11 and 12 can come from two basic sources. One is the extended campus where selected occupational experiences related to theory is received utilizing a community health facility as a school laboratory. Like any school laboratory experience, the learning experience is selected and supervised by school personnel. The student is not paid but credit is given

A second source for gaining occupational experience is through a Health Occupational Cooperative program. This is a program for students who, through a cooperative arrangement between the school and community health facilities receive instruction by alternation of instruction in school with a job in the health occupational field. These two experiences must be planned and supervised by school personnel and employers so that each contributes to the student's education and to his employability. The program is developed jointly by the school and health industry. Job skills and job adjustment are secured through an organized sequence of job experiences in paid, part-time employment and through classroom experience in related instruction in which credit is given. Possible training stations include: hospitals, physician offices, dental offices, pharmacies, nursing homes, sheltered care facilities, veterinary clinics, labs, therapy units.

Broadwell describes a Chicago Public Schools 10 week core curriculum program as one designed to orient students to function in "direct patient care" situations and acquaint them with the scope of opportunities in the field. Learning activities include assigned readings, films, discussions, guest speakers and a field trip to a hospital. Science concepts basic to all

health occupations are part of the core. Ethics, relationships with patients and co-workers, legal aspects of the health field, and the team-concept of health care are other areas included in the core.

The approach at the Mattoon High School (Illinois) in the Orientation to Health Occupations Program is to take each student, as a patient, by ambulance to the hospital. The student then continues through emergency admitting and diagnostic services and other aspects of the hospital. This is a direct involvement approach.

Colgan reported on an eleventh grade health occupations orientation program in which all students were required to take the course. Health occupations studied were limited to those occupations for which knowledges, skills, and attitudinal content was readily available. These included home health aide, psychiatric aide, dietary aide, food service aide, dietary clerk, medical records clerk, ward clerk, medical office assistant, dental office assistant, ambulance and emergency admitting and diagnostic services and other aspects of the hospital. This is a direct involvement approach.

There were 3 objectives identified for this specific program.

1. To develop individual commitments to health careers through realistic educational experiences.

2. To provide students with the guidance, background and education that would facilitate entry into post high school technical and professional health programs.

3. To provide students with the knowledge and skills needed to enter health occupations with an opportunity to ascend the career ladder. (7:12)

The Exploratory Program in Health Careers set up at Northwestern High School (Illinois) was funded by the Chrysler Corporation and was participated in by four local hospitals. After a period of orientation studen were placed in various departments for experience. Students were asked to interview workers in the health field. Students were teaken on several trips to visit non-hospital facilities related to health occupations. (8:90-103)

Cooperative Education programs provide an opportunity for pre-employment training to ensure a certain standard of competence on entry into a health occupation or training program while young people learn about the occupation before committing themselves to employment or further training. Such programs can also provide some students the means to remain in school and acquire credentials suitable for entrance into health occupations or other specialized training programs.

Some health occupations commonly found in secondary school Cooperativ Education programs are:

Dental Aide
Dental Laboratory Aide
Geriatric Aide
Home Health Aide
Hospital Admissions Clerk
Hospital Housekeeping Aide
Hospital Food Services
Hospital Laundry Aide
Inhalation Therapy Aide
Medical Laboratory Aide
Medical Office Aide
Medical Records Clerk
Mental Health Aide
Nurse Aide, Orderly or Attendant
Occupational Therapy Aide
Operating Room Aide
Physical Therapy Aide
Psychiatric Aide, Orderly or Attend-
and
Public Health Aide, including
Environmental Control Aide
Recreational Therapy Aide
Small or Large Animal Veterinary
Aide
Ward Clerk
X-Ray Aide (minimun age -18 yrs.)

Probably one of the most developed cooperative programs in Illinois is the Cooperative Health Occupations Assistants Program (CHOAP) at the George Westinghouse Area Vocational High School in Chicago. This program is open to juniors and seniors interested in earning while they learn in a hospital or other health facility. Students are programmed to work a minimum of 15 hours on the job with five class periods of related instruction per week. Two major academic credits are earned each year. Students attend their own general or vocational high school to complete necessary courses for graduation. The combined school and work schedule may not exceed a 40 hour week. During the junior year all students are enrolled in a ten week core curriculum. Classroom instruction and on-the-job training are in the student's geographic area, whenever possible. One unique characteristic of the scheduling is that students spend 4 days per week on-the-job training and then come in and spend 1 day in related class work. (1:11)

The junior year 10 week core curriculum is divided into two parts:

1. World of Work-such as grooming, attitude, body mechanics, punctuality, understanding human behavior and the health occupations team.

2. Basic Skills-such as handwashing, reading a thermometer, answering the telephone, taking messages, medical record keeping, sterilization and disinfection, and taking medical histories.

Some of the training stations offered are nurse aide, veterinary aide, pharmacy aide, inhalation therapy aide, occupational therapy aide, dental therapy aide, physical therapy aide, x-ray aide, podiatrics aide, activity aide, medical office aide, opthamology aide, medical records aide, and maintenance and engineering aide. (12:102)

Junior College Programs

Vocational education in health occupations is primarily adult education at the post-secondary level. Hospital attendants and dental assistants are the two occupational categories that receive major training emphasis at the secondary level. (25:5)

The present trend is to shift training for allied health personnel from hospitals to community and junior colleges. According to the AMA, in 1970 40 educational programs in radiologic technology transferred their bases from hospitals to community colleges with the hospitals generally retained as clinical affiliations. (20:1532)

There are several advantages in this shift. The junior college system has a greater potential for developing multiple programs in health occupations around the core concept. Not only does the combining of common aspects of many programs provide for possible worker mobility across occupations as well as between levels in an occupation but also provides better and more economical course offerings. (23:32)

One must consider the implications of another aspect. The socially accepted objective of "going to college" can be realized and status derived from attending a junior college as opposed to a training institute. (23:4)

The junior colleges are presently providing a broad spectrum of career programs ranging from 4 weeks to 22 weeks in length. High schools graduates are generally eligible for entry into certificate and associate degree programs while non-high school graduates over 18 years of age have the opportunity to enroll in appropriate courses and programs.

The junior college career programs generally stress practical, job-preparatory knowledge in one-year certificate programs. Many of the one-year certificate programs have a corresponding two-year associate degree program with more extensive preparation primarily in the liberal arts. The trend toward this "upside-down" curriculum approach--practical subjects given the first year--enables the student who wishes to obtain a job as quickly as possible to receive a certificate and go to work. (28:4)

In the junior college programs, core classes taught to many different trainees provide the opportunity for students to meet and exchange ideas and discoveries. Students can either delay a specific career choice or can move more rapidly from one specialty to another if they so desire. (29:7-8)

As it is anticipated that there will be continued vast changes in health occupations in the years ahead, educators need to teach not only practical skills but also principles and concepts of the job so that the worker can minimize or postpone obsolescence. (29:7)

Core curriculum being developed by junior colleges usually includes communications skills, human relations subjects, and fundamental medical courses. (18:21-23; 33:1) Wallenstien found that twelve allied health careers required basic knowledge in Anatomy, Physiology, Microbiology, Chemistry, Physics and medical terminology. The twelve allied fields were: dental assistant, dental lab technician, inhalation therapist, medical assistant, medical records technician, associate degree nurse, licensed practical nurse, occupational therapist, x-ray technician medical secretary, and medical lab assistant. (33:1)

The Physician's Assistant (PA) program offered at Duke University is one of the newest of the emerging programs. This program leads to a certificate not an associate degree. PA's are recruited primarily from people with health experience (e.g., armed service, LPN, etc.) The PA can perform under supervision any duty that the physician does repeatedly. Some duties that Duke PA trainees are taught are: to take histories, do physical exams, record data, present data to physical, do technical procedures, instruct patients, and do minor suturing. (21:149-155)

A review of Illinois junior college, area college and community college catalogs reveals some of the allied health programs being offered in the state. The programs listed below are not the only ones offered. The Bi state Regional Medical Program publication Opportunities in Health Careers indicates that training for many allied health careers in available in the Illinois-Missouri area. (page iv)

Occupation	Preparation Time	Type of Program
Nurse Assistant	4 weeks	Entry level
Ward Clerk	4 weeks	Entry level
Dental Assistant	1 year	Certificate
Inhalation Therapy Technician	1 year	Certificate
Operating Room Technician	1 year	Certificate
Practical Nurse	1 year	Certificate
Physicians Assistant	2 years	Certificate
Associate Degree Nurse	2 years	Associate degree
Dental Hygienist	2 years	Associate degree
Inhalation Therapy Technologist	2 years	Associate degree
Home-Term-Care Administrator	2 years	Associate degree
Medical Assistant	2 years	Associate degree
Medical Laboratory Technician	2 years	Associate degree
Medical Records Technician	2 years	Associate degree
Occupational Therapy Assistant	2 years	Associate degree
Physical Therapy Assistant	2 years	Associate degree
Radiologic Technician	2 years	Associate degree

It shoudl be noted that there are variations within a given allied health field as to length and type of program offered at different institutions. This may be due to variations in state certification or licensure requirements. Personnel in charge of program development as well as personnel counseling prospective health workers should be aware of the licensure-certification requirements for the specific field when making curricular decisions or advising students in vocational training education program selection.

Another aspect of the junior college system was pointed out by Looby. At Lakeland Junior College there is a 12 month LPN course and at Parkland College one can become an Associate Degree Nurse upon the successful completion of an 18 month program. One should have career objectives firmly in mind before deciding between two programs of this nature. (35)

Training Institution Programs

Congress has continued to support the preparation of nurses in hospital schools. A college education may not be desired or attainable by all. Many hospital schools provide allied health occupations education in sections of the country where there are no alternative programs. A precipitous closing of training institution programs would place too heavy a strain on other education institutions at a time when there is a great need to recruit numbers of health personnel. (27:58-9)

The training institution generally prepares a variety of aides, assistants and technical workers. The pattern of education offered by employing institutions ranges from on-the-job training to three year diploma programs for the preparation of nurses. Training institutions have traditionally

graduated, and continue to graduate, the largest number of nurse prepared to take licensure examinations.

The costs of hospital training programs have been included as service charges and therefore borne by patients. Many programs operated by service institutions have been discontinued due to financial stress. Also, the mobility of the present work force precludes the retention of those trained in a particular institution long enough for them to return services commensurate with the investment made. Shifting the costs to an educational institution supported by the public tax base seems appropriate and more compatible with the increased mobility of the labor force. (23:4)

While many training institutions are transferring their administrative bases to the junior college system maintaining clinical facilities in the hospital, another concept is emerging. Nangle reports that the educational effort for many allied health occupations could be in a setting which perceives the relationship among the various kinds of preparation rather than the separateness of each course. A health occupations training center would encompass all types of health occupation programs for people at all levels in public and private institutions. For maximum effectiveness and efficiency the center should be located in an urban area, operate 12 months a year, six to seven days a week, and be available before and after the average workday. The training institution of the future may be of this type organization. (26)

Many of the training institutions programs offered are in areas that do not require college preparation. Preparation for the following careers is generally available through hospital schools.

1. The Certified Laborabory Assistant is a high school graduate with one or two years of practical and technical training in laboratory work in an accredited hospital or laboratory.

2. The Histologic Technician is a high school graduate with one year of supervised training in a clinical pathology laboratory.

3. The Medical Record Technician is a high school graduate who has successfully completed a one year course in an approved program.

4. The Licensed Practical Nurse program accepts entrants between ages 17 and 50 and is one year in duration. A high school diploma is not always required for acceptance. This program is not a stepping stone to a career in professional nursing.

5. The Nurse Aide and Orderly are generally trained on-the-job in the hospital. Programs vary in length depending upon the training institution and the completion of grammar school is a prerequisite for program entry in most cases.

6. The Psychiatric Aide and Ward Clerk are trained on-the-job in the hospital. These positions offer immediate employment opportunities.

7. The Central Supply Technician requires a high school diploma with above average grades in science courses. Training periods vary from three to six months in a hospital or medical center. No training programs are available in the Illinois-Missouri area.

8. EEG and EKG Technicians need a high school diploma with a strong background in social and physical sciences. Programs are usually three to six months in length.

9. The Inhalation Therapist needs a high school diploma and training is approximately two years in length in hospitals with clinical instruction.

10. The Operating Room Technician is a high school graduate who successfully completes a training program of no longer than six months in length.

11. The Radiologic Technologist has a high school or equivalent preparation with a strong background in mathematics and science courses (preferably physics, chemistry and biology). Two years is the usual duration of the training program.

Hospital based training programs requiring more than on-the-job training generally consists of two basic phases: the classroom phase and the training done in clinical surroundings. This type of training is described in the report of an investigation of practical nursing programs. Kerr

conducted the study to identify areas of training used in common by variety of training program personnel.

The basic classroom phase varied in length from 11 to 22 weeks in the 45 Iowa and Illinois programs studied. All programs included instruction on fundamentals of nursing (Nursing Arts); body structure and function; personal, vocational and community relationships; communication skills; basic nutrition; human growth and development; family life span; personal and community health; and first aid and disaster nursing.

The clinical training phase consists of providing experiences in five blocks or general areas of nursing; adult (medical and surgical); and mother and newborn (obstetrical); children (pediatrics); the aged (geriatrics); and the mentally ill. (24)

As some occupations require licensure to obtain employment, programs should prepare trainees for such exams. Other careers require completion of an accredited program to be eligible for certification. Individuals interested in a specific career should obtain information from the state or national organization that is responsible for setting standards, on licensure and/or certification requirements and a listing of approved schools or training programs.

As Health Occupations Education evolves a more defined role, Reibling expects to see the articulation down to the high school or area vocational school training programs for the licensed practical nurse, inhalation therapy technician, operating room technician, nurse aide or orderly, and ward clerk. (37)

Colleges and Universities Programs

Professional courses leading to a baccalaureate degree or post-graduate education are available in most colleges and universities in the Illinois area.

One recent development of note in medical education is the shortening of the medical curriculum. According to the AMA, about one third of the medical schools have begun or are presently considering accelerated six, year, integrated premedical-medical programs. In general, the programs are of two types. One involves compression of a four-year course into a three-year course by eliminating vacation periods. The other involves special tailoring of a program to fit the aptitudes and talents of individual students. (30:1484-85) The university of Illinois has an accelerated medical program. (35)

Programs of preparation for hospital administration involve an undergraduate degree followed by a Master's degree in hospital or health administration. The graduate program usually consists of one or two years of academic study plus eight to twelve months residency in an approved hospital. A broad liberal arts education, courses in economics, management, finance, statistics, psychology, personnel and accounting are suggested for inclusion in in undergraduate preparation.

Biomedical computer careers require post-graduate preparation. Graduate students are recruited from electrical and mechanical engineers, applied mathematics, computer science, psychology, physiology and biophysics, biochemistry, botany, and zoology.

Some medical schools have recently initiated a program to prepare comprehensive health planners. A Master of Health Administration

(MHA) degree is awarded graduates who successfully complete the twenty one month course which includes three consecutive semesters on campus and two semesters in a hospital administration residency off campus. Health planning requires expertise in social, medical, economic and political areas and a broad background in behavioral sciences and business administration is desirable.

Dental professional schools are now selecting outstanding students with two years pre-professional education in an accredited college but most entrants have completed three or four years of pre-dental education. Professional school programs emphasize the basic sciences, dental science and clinical training, broad orientation in fundamental professional practices and the interrelationships of dentistry and medicine.

A career in dietetics requires a B.S. degree in foods and nutrition followed by a dietetic internship. To maintain American Dietetics Association registration (R.D.) continuing graduate work, seminars, conferences and short courses, is required.

There are several laboratory careers which require a college degree. Medical Technologist programs should culminate a baccalaureate degree. These training programs usually consist of three years on campus followed by twelve consecutive months of clinical laboratory training. Nuclear Medical Technologist programs usually require a B.S. degree in biological sciences or chemistry followed by two years in an acceptable laboratory. The Chemistry Technologist program usually requires a B.S. degree in chemistry and one year's experience in chemistry in an acceptable laboratory.

A Microbiologist has a B.S. in bacteriology with an additional one years experience in laboratory microbiology. Certification in biochemistry, immunology, and virology require a master's or Doctorate plus three years experience in an approved medical laboratory.

Another career that a baccalaureate degree is a prerequisite for is that of a medical librarian. A B.A. or B.S. degree is required for entry into any of the forty-two accredited library schools. A one year program leads to a Master's degree.

For lateral mobility in the nursing field a Master's or even a Doctorate degree is often necessary. For this it is necessary to have a baccalaureate nursing degree. Advanced clinical practice, teaching, public health nursing, nursing administration and supervision require the baccalaureate degree nurse.

A minimun of five years of post high school professional education is required for pharmacy. Graduates of five year pharmacy programs receive a B.S. degree while six-year programs in several states lead to a doctor of Pharmacy degree.

While X-ray Technologists can be prepared in two year programs leading to an Associate degree, advanced education is needed for supervisory, administrative and teaching positions. Four-year college courses offer a B.S. degree in radiologic technology.

A career as an Occupational Therapist requires a B.S. in occupational therapy with Master's degree programs also available. The Physical Therapist has three kinds of educational programs to choose from. One is a four-year program leading to a baccalaureate degree. The second is a certificate program for college graduates who meet specific requirements in biological, physical and social sciences. This program of twelve to

sixteen months in length leads to a certificate of proficiency in physical therapy. The third option is a two-year program leading to a Master's degree in physical therapy and is an alternate pathway for the college graduate.

While some colleges offer courses in education of the deaf, speech pathology and audiology at the undergraduate level, preparation for this career is on a post-graduate level.

Careers in medical illustrating and writing require four to six years of post-high school education.

The above descriptions of programs of preparation for professional health careers requiring baccalaureate degrees and above is not all inclusive. It has been a general nature and was intended to aid in differentiating health occupations educational programs at all educational levels.

Much of the information on career preparation presented in this section and the two sections immediately preceeding this section was taken from Opportunities in Health Careers: Directory/Missouri-Illinois: 1970-71 which was compiled and published by Bi'State Regional Medical Programs, St. Louis, Missouri.

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CHAPTER IV

DEVELOPMENT OF HEALTH OCCUPATIONS PROGRAMS

Sound cooperative vocational education programs do not usually result from "crash-programitis." Nine months to a year may be required to study the needs, to plan and tool up properly for the operation. Initially the task is one of gathering, organizing, and presenting data; obtaining funding; obtaining local support of the employment community; identifying and counseling students who can profit from the instruction; employing personnel; providing facilities and instructional materials; and developing curricular directions. (12:17)

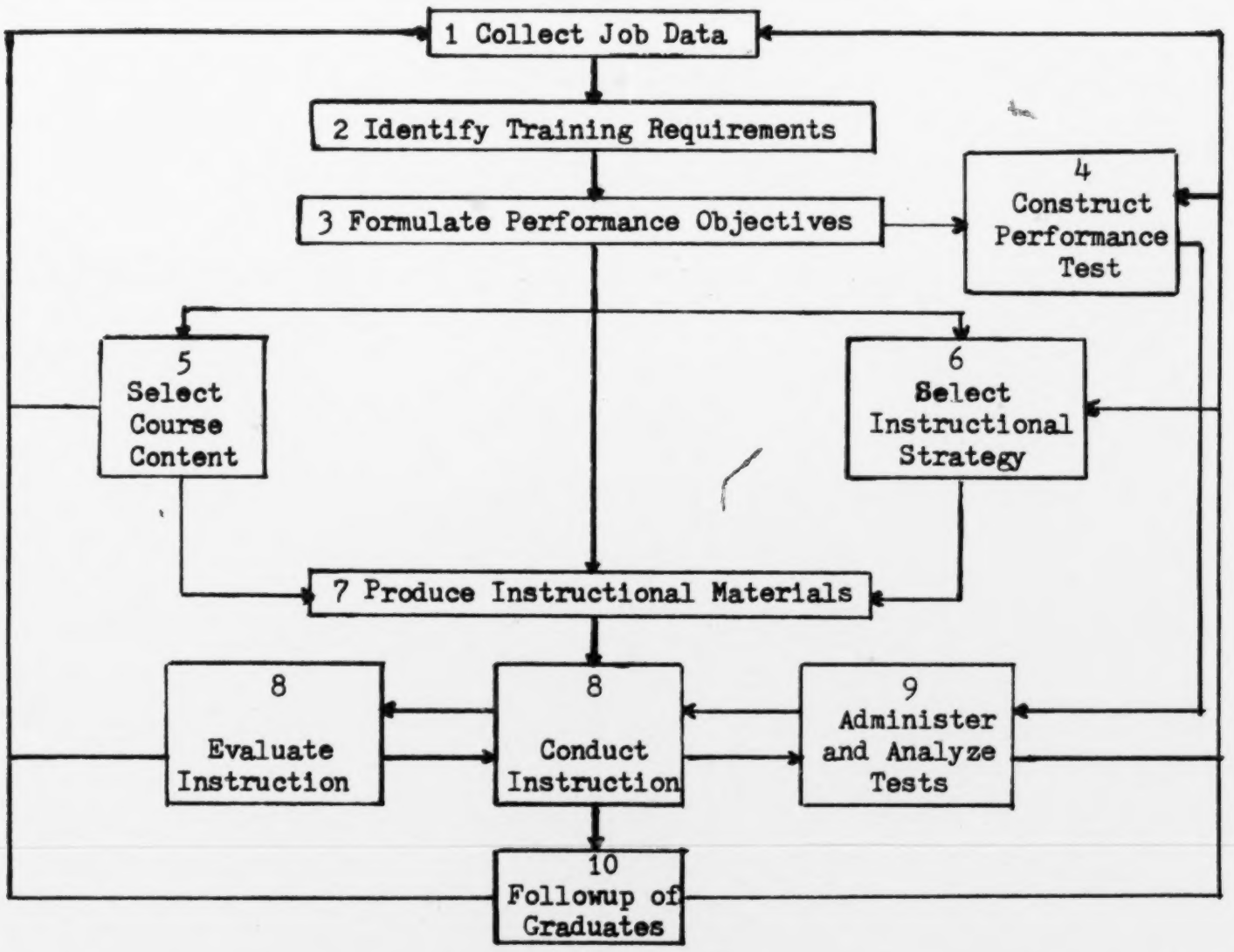
Curriculum building in health occupations is taking on a systems approach Regardless of where the curriculum is developed many aspects are being incorporated in a systems approach--a 'closed-loop' analytic and developmental process which can be utilized to develop curriculum, present and evaluate instruction, and provide for feedback of information on program effectiveness. This type approach should lead to efficiency in training and better prepared individuals while providing a means for constantly updating the training program. (5:12-13) Figure 7 illustrates one systems approach to preparing students for an occupation.

Assessment of Needs

A primary step in program development is the research and planning phase which includes a survey of local need. All employers and supervisors of health personnel in the area shoudl be contacted in this survey. A form for recording the information to be gathered either through interviewing or

FIGURE 7

A SYSTEMS APPRCACH TO OCCUPATIONAL TRAINING*



Source: W. R. Tracey, E. B. Glynn, and C.L.J. Legere, "Systems Approach Gets Results," Training in Business and Industry, Vol IV (June, 1967), pp. 17-21, 32-38.

*From 4:14

sending through the mail should be designed. Killen suggests that information can be obtained by sending the survey population a list of major health occupations and asking them to rank them according to the difficulty of filling, extent of training needed, and likelihood of being affected by technological change. A second question would relate to where do workers come from, i.e. locally or from other areas and what are the recruitment possibilities in the local area? (4:60-61) Reibling (18) indicated that not only should employers be asked what they need now but also what they anticipate they will need 10 years from now, and what will they pay trained personnel?

Killen reported that among factors identified for the low number of medical workers are the difficulties in recruiting students, the time the training takes, the cost of education, and the constraints of licensre. (4:61) While a large and rapidly growing occupational field with a big shortage of people has been documented, advancement is possible only with further training in health occupations.

Information should be obtained on the needs of the students within the school. Assuming the students have had exploratory occupational education based on a reliable method of obtaining information, student expressions of interest and need are an important kind of data to be obtained. The following factors should be considered: (12:18)

1. Students' career plans and interests
2. Students' plans for further education
3. Students' interests in occupations for which training can be provided.

The Illinois State Employment Service will administer the General Aptitude Test Battery, upon request, and students should be counseled on an individual basis concerning career alternatives available.

Hoppock suggests the following question can be useful in identifying the occupation presently being considered by students.

1. Considering what you now know of your abilities, interests and opportunities, what occupations do you think you are most likely to enter when you finish school?

2. What other occupations are you seriously considering?

3. What others would you enter if you could?

4. Would you like to have more information about any of these occupations? If so, which ones? (3:11)

Killen feels that workers training by the core and cluster concept in the health field could be mobile across jobs if they did not like the particular job they are in. Programs to meet the needs of students should be designed for occupations which have career ladder possibilities as people need the opportunity to rise in an occupation. (4:62) Westinghouse Area Vocational Center health personnel have found the indentification of career ladder opportunities of importance in motivation of students. (17)

Another step in the assessment of needs is considering like training available. The new program should complement or supplement the training available through other agencies in the community. It is easier to justify a program which serves an unfilled need than one which duplicates training already available. A good plan indicates how a program fits into the total efforts of the area.

Once the decision has been made to develop plans for a program, personnel are ready to consider programs designs suitable in light of the needs of potential students and the availability of community resources.

Curriculum Development

The guide for Cooperative Health Occupations Education at Secondary Level indicated that a local advisory committee is especially valuable in the early stages of program development. (13:3) Reibling (18) believed that the initial success of the Belleville Junior College program was due largely to the contributions of the advisory committees and Passarello (17) supported this with experiences of Westinghouse Area Vocational School.

There are two types of advisory or consultative committees that usually function at the local level. One type, known as the "general" advisory committee, is concerned with the offerings of the total Health Occupations Education program. The second is the occupational or craft committee which advises in one specific program, health field, or cluster of occupations.(12:39)

Riebling found the occupational type committee to have been of greater value in the planning and development stage than the general committee. Committee members should be representative of the general consensus of opinion of the profession, be interested in the educational system, and have the necessary time to devote to committee work. (18)

Experiences with programs throughout the state indicate a committee of approximately 12 persons, including ex-officio members, proves manageable from the standpoint of planning for meetings and adequacy of representation. The average functioning committee ranges from 7 to 12 members

The occupational committee is to assist and advise on matters of:

1. Curricular content
2. Availability of clinical resources and the placement of students for clinical training.
3. Post-training job placement
4. Identification of qualified faculty
5. Providing public relations at the local level
6. Providing a core of instructional resource persons. (4:61;18;13:3)

The advisory committee has no administrative function. The committee's purpose is to advise on relevant content and procedures for conducting programs and to serve as a liaison agent between the programs and the community.

An Articulated Guide for Cooperative Career Education has a section on organization and utilizing advisory committees and includes in the appendixes an example of an invitation to a local citizen to serve on an advisory committee and a sample advisory committee certificate of appreciation. (12:39-45,213,215)

Developing a curriculum and materials for an instructional program requires knowledge of each activity in which a person engages during performance of the job, how he does it, why he does it and what skill is involved in doing it. This necessitates doing a job analysis for the particular workers doing the jobs that students are going to be trained to do. This can be done by the processes described in chapter II. This will assist the teacher or coordinator in developing a planned sequence of activities and in the determination of specific objectives for the program.

It will aid in the specification of objective knowledges and skills and will be of value in the determination of the criterion standards for the expected success level that the learner should obtain in his evaluation activity.

Availability of Funds

The Division of Vocational and Technical Education for the State of Illinois provides funds to local school districts for cooperative education to students who can profit by this type of education. Local educational agencies are required to submit a plan for approval to the State Board of Vocational Education and Rehabilitation if funds for programs, services, and activities are to be reimbursed. Assistance in preparation of the plan will be provided by the Health Occupational Consultant Unit of the Division of Vocational and Technical Education, 405 Centennial Building, Springfield, Illinois 62706, upon request. The Regional Vocational Director is also available for consultation to any local district of planning, development, and implementation of a proposed program.

At the present time, while instructional programs are reimbursed based on a predetermined formula, the capital outlay for health occupations education is 100 percent reimbursable.

Legal Restrictions and Requirements

The legal aspects of the employment of cooperative students should be known and adhered to by the coordinator of the program and the employer of the student. Questions about regulations should be referred to the proper governmental agency. The guide for Cooperative Health Occupations Education at Secondary Level lists the following agencies as being involved with legal interpretation. (13:1)

U.S. Department of Labor
Wage and Hour Public Contracts
219 South Dearborn Street
Chicago, Illinois 60604

State of Illinois Department of Labor
165 North Canal
Chicago, Illinois 60604

or

103 State Office Building
Springfield Illinois 62706

Superintendent of Public Instruction
Division of Legal Services
302 State Office Building
Springfield, Illinois 62706

Department of Public Health
503 State Office Building
Springfield, Illinois 62706

An infringement of labor laws will reflect poorly upon the image of cooperative education. Problems of violations of labor laws are best avoided by the preparation of and adherence to a written training agreement which specifies conditions that insure compliance with regulations.

While coordinators and supervisors of cooperative education students should contact the regional office of the Wage and Hour and Public Contracts Division of the U.S. Department of Labor, to obtain up-to-date information on the legal aspects of on-the-job employment training, the following synopsis of regulations taken from An Articulated Guide for Cooperative Career Education is submitted.

1. The Fair Labor Standards Act provides minimum wage and overtime standards requires equal pay for equal work regardless of sex, and contains certain child labor standards.

2. A large portion of the students in cooperative education are in occupations covered by the Federal "Wage and Hour Law". The coordinator should know which occupations and types of enterprises are covered by this law.

3. The minimum wage rate for employment is covered by the Fair Labor Standards Act. Special minimum wage certificates for

students contain age, wage, hours, and record keeping requirements. See 12: Appendixes K. L, and M) These certivicates must be applied for and approved for students at least 16 years of age who are receiving not less than 75 percent of the statutory minimum wage.

4. Minimum ages are applicable to the employment of young people, unless special permission has been obtained to operate a pilot program. Ages for employment are:
   a. 16 years is generally the minimum age for employment in any occupation other than those nonagricultural occupations declared by the Secretary of Labor;

   b. 18 years of age is the minimum age for employemtn in non-agricultural hazardous occupations;

   c. 14 and 15-year-old minors may be employed in a variety of non-manufacturing and nonhazardous occupations outside school hours for limited daily and weekly hours, but not before 7 a.m. or after 7 p.m. (9 p.m., June 1 through Labor Day). (12:89)

It is strongly recommended that teacher-coordinators require all students learners to obtain proof of age certificates as evidence of their birth date for the protection of the training sponser. These may be obtained from the State of Illinois, Department of Labor, Division of Women's and Children's Employment, Chicago, Illinois 60601.

Nonagricultural Hazardous Occupations contain exemptions for student' learners and apprentices if they are employed under the following conditions:

1. enrolled in a cooperative education course
2. following a written training plan which provides
   a. hazardous part is incidental to his training
   b. such work is under direct and close supervision of qualified and experienced persons
   c. Safety instruction shall be given
   d. the work is progressive. (16:7-8)

In July of 1969, an Illinois Department of Public Health Bulletin stated that minors could be employed in areas of ionizing radiation (x-rays, isotopes) commonly found in hospitals, in the offices of dentists, physicians, veterinarians, as well as in industrial and research facilities if an environmental radiation survey is made by a qualified expert, an evaluation made of the radiation safety program at the facility, and the Department of Public Health submits written approval to the employer for his retention as a record. (14)

Regulatory procedures such as licensure, certification and/or registration in certain of the health occupations have been established. Killen defends this by citing the high mobility of people which makes some kind of course standardization highly desirable (4:62) while appropriate professional organizations or legally constituted authorities indicate this is a means of best serving the public interest. (12:93)

In Illinois the regulatory agency for licensure is the State Department of Registration and Education.

Professional societies certify individual workers. Program developers should know the certification standards and make appropriate provisions whereby graduates of the program may apply for certification.

The term registration is used by certain occupational groups interchangeable with either the term licensure or certification.

Facilities and Equipment

Space, amount and variety of equipment, similarity to work environment and current practice in the work world should be adaptable and meet

program objectives. The advisory committee should be relied upon for advice and assistance in this area. Facilities and equipment must meet occupational safety standards. (15:8) Clinical resources must be available to provide major training in many areas of practical experience. Clearly an advantage of cooperative education in times of rising costs is that educational institutions can utilize their staff and facilities much more effectively by sharing part of the costs of employment education with the employing community. This enables the school to provide for the expansion of occupational training.

The Center for Vocational and Technical Education has completed six documents on facility planning for occupational preparation programs for medical x-ray technicians, medical assistants, medical secretaries, dental laboratory technicians, dental assistants, and dental hygienists. Copies are available from the Center.

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3. Hoppock, Robert. Occupational Information, 3rd ed. St. Louis: McGraw Hill Book Company, 1967.

4. Killen, M. Barbara and Schechtman, Joseph. "How Do You Decide on a Health Occupations Program?" American Vocational Journal, Vol. 44, No. 5 (May, 1969), 60-62

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7. MacConnell, James D. et. al. A Guide for Planning Facilities for Occupational Preparation Programs for Medical Assistants, Research Series, No. 32. Columbus, Ohio: The Center for Vocational and Technical Education, The Ohio State University, Spring, 1969.

8. MacConnell, James D. et. al. A Guide for Planning Facilities for Occupational Preparation Programs for Medical Secretaries, Research Series, No. 33. Columbus, Ohio: The Center for Vocational and Technical Educatic The Ohio State University, Spring, 1969.

9. MacConnell, James D. et. al. A Guide for Planning Facilities for Occupational Preparation Programs for Dental Laboratory Technicians, Research Series, No. 34. Columbus, Ohio: The Center For Vocational and Technical Education, The Ohio State University, Spring, 1969

10. MacConnell, James D. et. al. A Guide for Planning Facilities for Occupational Preparation Programs for Dental Assistants, Research Series, No. 37. Columbus, Ohio: The Center for Vocational and Technical Education, The Ohio State University Spring, 1969.

11. MacConnell, James D. et. al. A Guide for Planning Facilities for Occupational Preparation Programs for Dental Hygienists, Research Series, No. 37. Columbus, Ohio: The Center for Vocational and Technical Education, The Ohio State University, Spring, 1969.

12. State of Illinois. An Articulated Guide for Cooperative Career Education Springfield, Illinois: Division of Vocational and Technical Education, (1971)

13. State of Illinois. Cooperative Health Occupation Education at Secondary Level. Springfield, Illinois: Division of Vocational and Technical Education, (1971)

14. State of Illinois, Department of Public Health. Restriction on Occupational Exposure of Minors. Springfield, Illinois, July 17, 1969. (Mimeographed)

15. State of Oregon. Guide to Structure and Articulation of Occupational Education Programs (Grades 7-12 and Post High School). Salem: Oregon State Department of Education, 1968.

16. U.S. Department of Labor, Wage and Hours and Public Contracts Division. A Guide to Child Labor Provisions of the Fair Labor Standard Act. Washington, D. C.: Government Printing Office, 1969.

Speeches

17. Passarello, Anna. "Health Occupational Programs at Westinghouse Area Vocational School, Chicago." A presentation made to the Health Occupations Education Workshop at Eastern Illinois University, August 3, 1971.

18. Reibling, Lewis. "The Role of the Junior College in Meeting Health Manpower Needs." A presentation made to Health Occupation Education Workshop at Eastern Illinois University, July, 30, 1971.

APPENDIXES

APPENDIX A

Source of Information

SOURCES OF INFORMATION

The following list of organizations has been reproduced from the pamphlet Where to get Health Career Information, published by the National Council on Health, Inc., 1740 Broadway, New York, N. Y. 10019.

You can obtain information on the ppportunities and requirements in a health field by writing to the corresponding organizations whose addresses appear in the referral list.

REFERRAL LIST OF SOURCE AGENCIES

1. AMERICAN ACADEMY OF GEN_ ERAL PRACTICE
   Volker Boulevard at Brookside
   Kansas City, Missouri 64112

2. AMERICAN ACADEMY OF PED_ IATRICS
   Box 1034, 1801 Hinman
   Evanston, Illinois 60204

3. AMERICAN ACADEMY OF PHYSICAL MEDICINE AND REHABILITATION
   30 North Michigan Avenue
   Chicago, Illinois 60602

4. AMERICAN ASSOCIATION FOR HEALTH PHYSICAL EDUCATION AND RECREATION
   1201 16th St. N. Y.
   Washington, D. C. 20036

5. AMERICAN ASSOCIATION OF DEN' TAL SCHOOLS
   211 East Chicago Avenue
   Chicago, Illinois 60611

6. AMERICAN ASSOCIATION FOR INHALATION THERAPY
   4075 Main St., Suite 316
   Riverside, Calif. 92501

7. AMERICAN ASSOCIATION OF INDUSTRIAL NURSING INC.
   79 Madison Ave.
   New York, New York 10016

8. AMERICAN ASSOC. OF MEDICAL ASSISTANTS, INC.
   200 E. Ohio St.
   Chicago, Illinois 60611

9. AMERICAN ASSOCIATION OF NURSE ANESTHETISTS
   3010 Prudential Plaza
   Chicago, Illinois 60611

10. AMERICAN CANCER SOCIETY
    219 E. Forty Second St.
    New York, New York 10017

11. AMERICAN CHEMICAL SOCIETY
    1155 Sixteenth St.
    Washington, D. C. 20005

12. AMERICAN COLLEGE HOSPITAL ADMINISTRATORS
    840 North Lake Shore Drive
    Chicago, Illinois 60611

13. AMERICAN COLLEGE NURSE MIDWIVES
    50 E. 92 St.
    New York, New York 10028

14. AMERICAN DENTAL ASSISTANTS ASSOCIATION
    211 E. Chicago Ave.
    Chicago, Illinois 60611

15. AMERICAN DENTAL ASSOCIATION
211 East Chicago Avenue
Chicago, Illinois 60611

16. AMERICAN DENTAL HYGIENISTS ASSOCIATION
211 East Chicago Avenue
Chicago, Illinois 60611

17. AMERICAN DIETETIC ASSOCIATION
620 North Michigan Avenue
Chicago, Illinois 60611

18. AMERICAN HEART ASSOCIATION
44 East Twenty-Third Street
New York, New York 10010

19. AMERICAN HOME ECONOMICS ASSOCIATION
1600 Twentieth Street, N.W.
Washington, D.C. 20009

20. AMERICAN HOSPITAL ASSOCIATION
840 North Lake Shore Dr.
Chicago, Illinois 60611

21. AMERICAN INDUSTRIAL HYGIENE ASSOCIATION
14125 Prevost Street
Detroit, Michigan 48227

22. AMERICAN JOURNAL OF ART THERAPY
Box 4918
Washington, D.C. 20008

23. AMERICAN MEDICAL ASSOCIATION
535 North Dearborn Street
Chicago, Illinois 60610

24. AMERICAN MEDICAL RECORD ASSOCIATION
211 East Chicago Street
Chicago, Illinois 60611

25. AMERICAN MEDICAL WOMEN'S ASSOCIATION 1740 Broadway
New York, New York 10019

26. AMERICAN NATIONAL RED CROSS
Seventeenth and D St N.W.
Washington, D.C. 20006

27. AMERICAN NURSES' ASSOCIATION ANA-
Committee on Nurse Careers
10 Columbus Circle
New York, New York 10019

28. AMERICAN NURSING HOME ASSOCIATION
1025 Connecticut Av. N.W.
Washington, D.C. 20

29. AMERICAN OCCUPATIONAL THERAPY ASSOCIATION
251 Park Avenue Sout
New York, New York 10010

30. AMERICAN OPTOMETRIC ASSOCIATION
7000 Chippewa Street
St. Louis, Missouri 63119

31. AMERICAN ORTHOPTIC COUNCIL
3400 Massachusetts Avenue, N.W.
Washington, D.C. 20007

32. AMERICAN ORTHOTIC AND PROSTHETIC ASSOCIATION
919 Eighteenth Street, N.W.
Washington, D.C. 20006

33. AMERICAN OSTEOPATHIC ASSOCIATION
212 East Ohio Street
Chicago, Illinois 60611

34. AMERICAN PHARMACEUTICAL ASSOCIATION
2215 Constitution Avenue, N.W.
Washington, D.C. 20037

35. AMERICAN PHYSICAL THERAPY ASSOCIATION
1740 Broadway
New York, New York 10019

36. AMERICAN PHYSIOLOGICAL SOCIETY
9650 Rockville Pike
Bethesda, Maryland 20014

37. AMERICAN PODIATRY ASSOCIATION
20 Chevy Chase Circle, N.W.
Washington, D.C. 20015

38. AMERICAN PSYCHIATRIC ASSOCIATION
1700 Eighteenth Street, N.W.
Washington, D.C. 20009

39. AMERICAN PSYCHOLOGICAL ASSOCIATION
1200 Seventeenth Street, N.W.
Washington, D.C. 200036

40. AMERICAN PUBLIC HEALTH ASSOCIATION
1740 Broadway
New York, New York 10019

41. AMERICAN REHABILITATION COUNSELING ASSOCIATION
1605 New Hampshire Avenue
Washington, D.C. 20009

42. AMERICAN SOCIETY FOR PHARMACOLOGY AND EXPERIMENTAL THERAPEUTICS, INC.
9650 Rockville Pike
Bethesda, Maryland 20014

43. AMERICAN SOCIETY BIOLOGICAL CHEMISTRY
9650 Rockville Pike
Bethesda, Maryland 20014

44. AMERICAN SOCIETY CIVIL ENGINEERS
345 East Forty-Seventh Street
New York, New York 10017

45. AMERICAN SOCIETY OF CLINICAL PATHOLOGISTS
710 South Wolcott Avenue
Chicago, Illinois 60612

46. AMERICAN SOCIETY OF HOSPITAL PHARMACISTS
4630 Montgomery Avenue
Washington, D.C. 20014

47. AMERICAN SOCIETY OF MEDICAL TECHNOLOGISTS
Suite 1600, Hermann Professional Building
Houston, Texas 77025

48. AMERICAN SOCIETY OF RADIOLOGIC TECHNOLOGISTS
645 North Michigan Avenue
Chicago, Illinois 60611

49. AMERICAN SOCIETY OF SAFETY ENGINEERS
850 Busse Hwy.
Park Ridge, Illinois 60068

50. AMERICAN VETERINARY MEDICAL ASSOCIATION
600 South Michigan Avenue
Chicago, Illinois 60605

51. ARTHRITIS FOUNDATION
1212 Avenue of the Americas
New York, New York 10036

52. ASSOCIATION OF AMERICAN MEDICAL COLLEGES
13 6 Connecticut Avenue, N.W.
Washington, D.C. 20036

53. ASSOCIATION OF MEDICAL ILLUSTRATORS
738 Keystone Avenue
River Forest, Illinois 60305

54. ASSOCIATION OF UNIVERSITY PROGRAMS IN HOSPITAL ADMINISTRATION
One Dupont Circle, Room 420
Washington, D.C. 20005

55. BIOLOGICAL PHOTOGRAPHIC ASSOCIATION, INC.
P.O. Box 12866
Philadelphia, Penn. 19108

56. BLUE CROSS ASSOCIATION
840 North Lake Shore Drive
Chicago, Illinois 60611

57. BOARD OF CERTIFIED LABORATORY ASSISTANTS
445 North Lake Shore Drive
Chicago, Illinois 60611

58. GOODWILL INDUSTRIES OF AMERICA, INC.
9200 Wisconsin Avenue, N.W.
Washington, D.C. 20014

59. HOSOITAL FINANCIAI MANAGEMENT ASSOC ATION
840 North Lake SHore Drive
Chicago, Illinois 60611

60. INSTITUTE OF FOOD TECHNOLOGISTS
221 N. LaSalle Street
Chicago, Illinois 606

61. INTERSOCIETY COM. MITTEE ON PATHOLOG INFORTATION
9650 Rockville Pike
Bethesda, Maryland 20014

62. MATERNITY CENTER ASSOCIATION
48 East 92nd Street
New York, New York 10028

63. MEDICAL LIBRARY ASSOCIATION
619 North Michigan Avenue, Suite 1601
Chicago, Illinois 60611

64. NATIONAL ASSOC FOR MENTAL HEALTH
10 Columbus Circle
New York, New York 10019

65. NATIONAL ASSOC FOR MUSIC THERAPY INC.
P.O. Box 610
Lawrence, Kansas 66044

66. NATIONAL ASSOC FOR PRACTICAL NURSE EDUCATION AND SERVIC
1465 Broadway
New York, New York 10036

67. NATIONAL ASSOCIATION FOR RETARDED CHILDREN
420 Lexington Avenue
New York, New York 10017

68. NATIONAL ASSOCIATION OF HEARING AND SPEECH AGENCIES
91918 Street, N.W.
Washington, D.C. 20006

69. NATIONAL COMMISSION FOR SOCIAL WORK CAREERS
Two Park Avenue
New York, New York 10016

70. NATIONAL COUNCIL ON THE AGING
315 Park Avenue South
New York, New York 10010

71. NATIONAL COUNCIL ON ALCOHOLISM
2 East 103 Street
New York, New York 10029

72. NATIONAL EASTER SEAL SOCIETY FOR CRIPPLED CHILDREN AND ADULTS
2023 West Ogden Avenue
Chicago, Illinois 60012

73. NATIONAL ENVIROMENTAL HEALTH ASSOCIATION
1550 Lincoln Street
Denver, Colorado 80203

74. NATIONAL EXECUTIVE HOUSEKEEPERS ASSOCIATION, INC.
Business and Professional Bldg.
Gallipolis, Ohio 45631

75. NATIONAL FEDERATION OF LICENSED PRACTICAL NURSES
250 West 57 Street
New York, New York 10019

76. NATIONAL KIDNEY FOUNDATION
315 Park Avenue Sou
New York, New York 10010

77. NATIONAL LEAGU FOR NURSING
10 Columbus Circle
New York, New Yo 10019

78. NATIONAL MEDICAL ASSOCIATION
520 W Street, N.W.
Washington, D.C. 20001

79. NATIONAL MULTIPL SCLEROSIS SOCIET
257 Park Avenue Sout
New York, New York 10010

80. NATIONAL REHABIL-ITATION COUNSELIN ASSOCIATION
1522 K Street, N.W.
Washington, D.C. 20005

81. NATIONAL SAFETY COUNCIL
425 No. Michigan Av
Chicago, Illinois 60611

82. NATIONAL SOCIETY FOR MEDICAL RESEARCH
1330 Massachusetts A N.W., Suite 103
Washington, D.C. 20005

83. NATIONAL SOCIETY FOR THE PREVENTIC OF BLINDNESS
79 Madison Avenue
New York, New York 10010

84. NATIONAL TUBERCULOSIS AND RESPIRATORY DISEASE ASSOCIATION
1740 Broadway
New York, New York 10019

85. PLANNED PARENTHOOD WORLD POPULATION
515 Madison Avenue
New York, New York 10022

86. REGISTRY OF MEDICAL TECHNOLOGISTS
American Society of Clinical Pathologists
710 South Wolcott Avenue
Chicago, Illinois 60612

87. SOCIETY OF PUBLIC HEALTH EDUCATION INC.
419 Park Avenue South
New York, New York 10016

88. THERAPEUTIC RECREATION SERVICES, NATIONAL RECREATION & PARK SERVICES
1700 Pennsylvania Ave. N. W.
Washington, D. C. 20036

89. U.S. FOOD AND DRUG ADMINISTRATION
Washington, D. C. 20036

90. U.S. ATOMIC ENERGY COMMISSION
Division of Technical information Extension
Education Services Section
P. O. Box 62
Oak Ridge, Tennessee 37830

91. U.S. OFFICE OF EDUCATION
Bureau of Adult Vocational & Library Programs
Health Occupations-Divisions of Vocational & Technical Education
Washington, D. C. 20202

92. PUBLIC HEALTH SERVICE SERVICE
National Institutes of Health
Bureau of Professions Education and Manpower Training Office
9000 Rockville Pike Bethesda
Maryland 20014

93. PUBLIC HEALTH SERVICE
Office of Public Inquiries
Bethesda, Maryland 20034

94. SOCIAL & REHABILITATION SERVICES
U.S. Department of Health, Education & Welfare
Washington, D. C. 20201

95. VETERANS ADMINISTRATION
Office of Personnel (Code 054)
Washington, D. C. 20430
or Personnel Officer of any V. A. Hospital.

AMERICAN HOSPITAL ASSOCIATION
840 North Lake Shore Drive
Chicago, Illinois 60611
Telephone 312/645-9400
Cable Address: Amhosp

March 1971

HEALTH CAREERS INFORMATION
GOVERNMENT AGENCIES

The following is a list of selected federal agencies that provide information on health careers. Information also is available from state agencies such as the board of education and its divisions, department of public health, and state employment services.

U.S. Atomic Energy Commission
Division of Technical Information
Extension
P.O. Box 62
Oak Ridge, Tennessee 37839
(health-related nuclear science and atomic medicine careers)

Bureau of Labor Statistics
U.S. Department of Labor
Washington, D.C. 20210
(pamphlets ov over 100 health careers reprinted from Occupational Outlook Reports)

U.S. Civil Service Commission
Bureau or Recruiting and Examing
Washington, D.C. 20415
(health careers in government)

National Institute of Mental Health
Public Information Office
Room 12A23
5454 Wisconsin Avenue
Chevy Chase, Maryland 20203
(Careers in mental Health)

Office of Education
U.S. Department of Health, Education and Welfare
400 Maryland Avenue, S.W.
Washington, D.C. 20202
(Material on vocational and technical education opportunities)

Personnel Office
Food and Drug Administration
U.S. Department of Health,
Education and Welfare
Washington, D.C. 20204
(food and drug inspectors)

Public Health Service
Bureau of Health Manpower Education
National Institutes of Health
Information Office
9000 Rockville Pike
Bethesda, Maryland 20014
(general information on health careers)

U.S. Public Health Service
Office of Personnel
Office of Surgeon General
9000 Rockville Pike, NBOC #2
Bethesda, Maryland 20014
(careers in public health such as nurse, physician, dentist, etc.)

U.S. Public Health Service
Office of Public Inquiries
Bethesda, Maryland 20034
(careers in the Public Health Service)

Veterans Administration
VA Forms and Publications Depot
2625 Shirlington Road
Arlington, Virginia 22206
(health careers with the V.A.)

Vocational Rehabilitation Administration
U.S. Department of Health, Education and Welfare
Washington, D.C. 20201
(vocational rehabilitation counselors)

For information on health careers in the armed forces, write to the recruiting offices of the appropriate service branch in Washington, D.C., or to your local recruiting office.

AMERICAN HOSPITAL ASSOCIATION
840 North Lake Shore Drive
Chicago, Illinois 60611
Telephone 312/645-9400
Cable Address: Amhosp

April 1971

HEALTH CAREERS BIBLIOGRAPHY

A selected list of literature that gives basic information on careers in the health field.

Career opportunities--Health Technicians. Edited by Robert E. Kinsinger, Ed. D. Chicago: J.G. Ferguson Publishing Co., 1970. 386 pp. $11.95. This reference guide examines in detail 25 major health career areas and describes over 150 specific job opportunities available to graduates of technical health programs offered by community colleges, technical institutions, vocational schools, hospital-based schools, and some four-year colleges and universities. Information on each career includes specific job descriptions, necessary personnel qualifications, high school and post-high school educational requirements and regulations, entry-level jobs and ways to get them, working conditions, earnings and benefits, advancement opportunities and future trends. Available from the J. G. Ferguson Publishing Co., Six North Michigan Avenue, Chicago 60602.

Careers that Count. Chicago: American Hospital Association, rev. 1969. 8 pp. Sincle copy free. This brochure lists a number of health occupations and gives the names and addresses of the national health practitioner associations to write for further information. Available from the Association, 840 North Lake Shore Drive, Chicago 60611.

Counselor's Guide to Manpower Information. Washington, D. C., U.S. Department of Labor, 1968. 102 pp. $1. This annotated bibliography of government manpower literature; education, financial assistance, and placement information; manpower problems and issues, and special groups in the labor force. Explanations of each subject area precede each section. Also included are sections on basic statistics available from government sources and on directories, catalogs, and bibliographies. Federal depository libraries are listed in the appendix. Available from the Superintendent of Documents, U.S. Government Printing Office, Washington, D. C. 20402.

Cross-Reference: Manpower-Education-Careers. Chicago: American Hospital Association. A service of the Bureau of Manpower and Education, AHA, this monthly publication reports on the latest activities and developments in health careers recruitment, health occupations education, continuing education, health manpower research, manpower legislation, licensure and career mobility, innovations in manpower utilization, and emerging health occupations. Available from the Association, 840 North Lake Shore Drive, Chicago 60611 $5/year.

Educational Programs in the Health Field. Chicago: American Hospital Association. 28 pp. Single copy free. This booklet is reprinted annually from the August 1 Guide issue of Hospitals, J.A.H.A. It lists educational programs in 25 health technology areas. Available from the Association, 840 North lake shore Drive, Chicago 60611.

Federal Dollars for Scholars. Henry Toy Jr. Washington, D. C.: Nu-Toy, Inc., 1970. 297 pp. $3.99. This book provides information on the selective service system and the various branches of government that offer financial assistance th undergraduate and graduate students. The major section of th e publication describes the 401 programs supported by 36 federal agencies of financial assistance for education, research or training. Health related professions include medicine, dentistry, nursing, pharmacy, and social work. Available from Nu-Toy, Inc., 1840 Fenwick Street, N.W., Washington, D. C. 20002.

Financial Aid for Higher Education. Washington, D. C.: U.S. Department of Health, Education, and Welfare, Office of Education, 1968. 110 pp. $1. This booklet is designed for students, parents, and guidance counselors. It explains three types of financial aid scholarships and grants, loans and employment; how to apply for assistance; and college costs. Information is included on the four major federal programs; educational opportunity grants college work-study program, national defense student loans, and guaranteed loan program. It also lists the colleges and universities participating in these programs. Available from the Superintendent of Documents, U.S. Government Printing Office, Washington, D. C. 20402.

Health Careers Guidebook. Washington, D. C.: U.S. Department of Labor, 1965. 251 pp. $1.50. This guide presents information on more than 200 careers in the health field. Available from the U.S. Government Printing Office, Superintendent of Documents, Washington, D. C. 20402.

Horizons Unlimited. Chicago: American Medical Association, rev. 1969. 134 pp. Single copy free. The book describes careers in medicine and a number of related health technology occupations such as social work, rehabilitation, and nursing. Available from local medical societies or the Program Services Department, American Medical Association, 535 North Dearborn, Chicago 60610.

The Hospital People. A Report by Blue Cross. Chicago: Blue Cross Association, 1967. 80 pp. Single copy free. This illustrated booklet gives information on a variety of hospital jobs. Available from local Blue Cross Plan offices.

Need A Lift? The American Legion. 128 pp. 50¢. This booklet, revised annually, presents information on school scholarships and loans available from private organizations as well as state and federal agencies. Order from the Legion, Dept. S, P.O. Box 1055, Indianapolis, Indiana 46206.

NVGA Bibliography of Current Career Information. Washington, D. C.: National Vocational Guidance Association, 1969. 129 pp. $2. This guide to the selection of occupational and vocational materials includes guidelines for preparing and evaluating occupational literature and films plus a comprehensive list and evaluative rating of available materials and publisher's index. Available from the American Personnel and Guidance Association, 1607 New Hampshire Avenue, N.W. Washington, D. C. 20009.

Occupational Outlook Handbook. Washington, D. C.: U.S. Department of Labor, 1970. 860 pp. $6.25. The 1970-71 edition of the handbook includes descriptions of 22 health services occupations. Introductory sections present information on outlook of education, educational trends, and present employment growth. Major headings are professional and related occupations clerical and related occupations, sales occupations, service occupations, and skilled and other manual occupations. Available from the Superintendent of Documents, U.S. Government Printing office, Washington, D. C. 20402.

Today's Hospital . . . Career Center for America's Youth. Chicago: American Hospital Association, 1970 rev. 8 pp. Single copy free. This leaflet gives general information on career opportunities in hospitals. Available from the Association, 840 North Lake Shore Drive, Chicago 60611.

AMERICAN HOSPITAL ASSOCIATION
840 North Lake Shore Drive
Chicago, Illinois 60611
Telephone 312/645-9400
Cable Address: Amhosp

January 1971

SELECTED FILMS ON HEALTH CAREERS

The Fixing Business: 14-min. 16mm. color film of the Association of University Programs in Hospital Administration describes the career of hospital administrator and demonstrates how he can be an agent for change and new direction in the health care system. Available for purchase for $150 from AUPHA/Screenscope Inc., One Dupont Circle, Suite 420, Washington, D. C. 20036. Also available for rental from AUPHA for $5 per day.

For Today and Tomorrow: 22-min. 16mm. color film explains the training anf functions of a physical therapist by following the patient of a surfing accident through hospitalization, rehabilitation, and subsequent enrollment in an educational program. For information on distribution write Royce P. Noland, Executive Director, American Physical Therapy Association, Claifornia Chapters, 658 Ocean Street, Santa Cruz, California.

Health CareersI:13-min-color filmstrip describing 23 health careers. Health Careers II: color filmstrip describes seven allied health occupations open to high school graduates. (Additions to series: Health Careers III and IV.) Narration on records. Available for previewing in record or tape kit, from Lawren Productions, Inc., 4233 Wooster Avenue, San Mateo, California 94403. Cost: record kit-$10.00, tape kit-$11.50.

Horizons Unlimited: 28-min. 16mm. color film presents a variety of careers in the hospital, explaining the educational backgrounds, professional skills, and aspirations of each. The American Medical Association film stresses that there are many health occupations other than the physician and nurse. Available on loan from Modern Talking Pictures, Inc., Prudential Plaza, Chicago, Illinois 60610, or from the American Hospital Association.

Jobs in the Health Field: 15-min. 16mm. color film describes some of the jobs available in the health field and the qualifications required. Available free from local U.S. Employment Service Office, U.S. Department of Labor.

*Films or filmstrips on specific careers generally are avialable for purchase or loan from the professional organization representing the career. When requesting a loan, indicate first and second choices for dates of showing.

A : Matter of Opportunity: 22 min. 16mm. black and white film, produced by the American Medical Association, uses black medical students to present the difficulties facing the black man interested in a medical career. Available from Modern Talking Pictures. 160 E. Grand Avenue Chicago, Illinois 60610.

In a Medical Laboratory: 28 min. 16mm. color movie shows the parts played by various laboratory personnel in the diagnosis and treatment of three patients. Available through state and local pathologists and medical technologist societies, through local chapters of the American Cancer Society and through medical schools. For a list of distributors, write the National Committee for careers in Medical Technology, 9650 Rockville Pike, Bethesda, Maryland 20014.

Seven for Suzie: 13½ min. color film shows how seven members of the rehabilitation team-physical therapist, occupational therapist, social worker, speech pathologist, psychologist, recreation specialist, and special education teacher-work together and separately to help the handicapped child work, play, improve her speech, and prepare for regular school life. Printed material describing the rehabilitation professions and listing sources of further information is available to supplement the film. Prints may be borrowed from state Easter Seal societies or purchased, at $50 each, from Careers in Rehabilitation, National Easter Seal Society, 2023 W. Ogden Avenue, Chicago, Illinois 60612.

Summer of Decision: 16 mm. balck and white film, produced in 1959 for the Council of Social Work Education, presents an overview of social work as a career. 29 min. Available free from Association Films, Inc., 561 Hillgrove, LaGrange, Illinois.

Target: Occupational Therapy: 15-min. 16mm. movie depicting the challenges of occupational therapy and rewarding experiences. Available from American Occupational Therapy Association, 251 Park Avenue, S., New York 10010. For loan or purchase, Cost: $40 for black and white $70 for color.

APPENDIX B
Suggested Pupil Activities for Health Occupations Orientation

SUGGESTED PUPIL ACTIVITIES FOR HEALTH OCCUPATIONS ORIENTATION

Activities for Health Occupations Exploration K-6

1. Visit the hospital and other places of employment to observe people and machines at work.
2. Ask an ambulance driver to bring the ambulance to school for class inspection.
3. Use a real microscope to look at slides of blood, cells, etc.
4. Dress up like people in health occupations.
5. Write and act out skits portraying people at work.
6. Draw pictures of people at work with their tools.
7. Invite people in health occupations to talk to class about their job and the training they had.
8. Collect and exhibit tools and/or disposables people use in their work.
9. Use tape recorders to inverview people on the job; share with class.
10. Use cameras to take pictures of people at work; display.
11. Finish the sentence "I think it would be neat to be a _____ because _____.
12. Record sounds of people and machines on the job; share with class.
13. Prepare a display about health occupations.
14. Match job titles to organs or machines which are related to the title. (Use a flannel or bulletin board.)
15. Collect and display toys related to health occupations.
16. Make a poster about a health career.
17. Name five health occupations and let pupils make sock puppets of health workers and give talks about "their jobs."
18. Visit your doctor for a check-up.
19. Dress boy and girl dolls in the uniforms of workers; display.
20. Create, in a corner, the environment of a specific health occupation.

Activities for Health Occupations Exploration 7-10

1. Write a report about a health occupation.
2. Prepare a bulletin board which shows places of employment.
3. Prepare transparencies which show tools people use in their work. Ask your classmates to use a wax pencil to write in names of tools.
4. Present a talk to younger children about the importance of health occupations.
5. Prepare a packet of materials about health occupations and their required training.
6. Practice shaking down and reading a thermometer.
7. Collect books for small children which will help them learn about occupations.
8. Make and keep an appointment with your dentist.
9. Visit a friend who is hospitalized; observe workers on the job.
10. Help to care for a relative or friend who is ill; jot down your activities.
11. Recall a time when you were ill or hurt; list the kinds of help you required.
12. Correspond with someone training for a health career; find out what they do in training.
13. List at least 20 job titles in the health occupations.
14. Help organize a club for students interested in pursuing a health career.
15. Confer with your counselor about your aptitudes for a health career.
16. Plan a club or radio program about health careers.
17. Demonstrate hospital bed making techniques.
18. Prepare petri dishes and expose them to common bacteria (hands, hair, air, etc.) watch growth. Implications?
19. Do a task analysis of a health occupation of interest.
20. Interview workers in a health occupation of interest.

APPENDIX C

Health Occupations Education Workshop

HEALTH OCCUPATIONS EDUCATION WORKSHOP

Course Outline

I. Introduction

- A. Manpower Needs * Employment Opportunities
- B. Emerging Concepts in Health Care Systems
- C. Research Developments in Health Occupations

II. Survey of Health Occupations

- A. Health Occupation Analysis
- B. Identification of Health Personnel in Community Services
- C. Resource Material About Health

III. Descriptions of Programs

- A. Elementary and Secondary School Health Occupational Programs
  1. Exploration (k-6)
  2. Orientation (7-10)
  3. Training (11-12)
     - a. Cooperative Education
     - b. Cooperative Work Training
     - c. Special Programs
- B. Jr. College Programs
- C. Training Institution Programs
  1. Hospitals
  2. Training Centers
  3. Allied Health Centers
- D. Colleges and Universities Programs

IV. Development of Health Occupation Programs

- A. Assessment of Needs
- B. Availability of Funds
- C. Curriculum Development

D. Legal Restrictions and Requirements

E. Facilities and Equipment